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TEXAS STATE JOURNAL OF MEDICINE

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President's Page

A TIME TO GIVE THANKS

This is the period of two great Christian festivals, Thanksgiving and Christmas. It is the harvest time, when those who produce wealth from the soil realize on the toil and sweat of planting and tilling. With Thanksgiving just past and Christmas approaching, it is indeed a time for thanksgiving.

Considering our profession, we can give thanks for American medicine—its illustrious past, glorious present, and future bright with promise of greater conquests over disease. The American physician can glow with pride for the contributions of his fellows to the welfare of this commonwealth. The array is impressive: Benjamin Rush, signer of the Declaration of Independence; General Leonard Wood, military governor of Cuba and the Philippines and founder of World War I training camps; William C. Gorgas, conqueror of yellow fever and malaria, who made possible construction of the Panama Canal; Hubert Work, Secretary of the Interior under Calvin Coolidge; Ray Lyman Wilbur, Secretary of the Interior under Herbert Hoover; and Walter H. Judd, former missionary to China now Congressman from Minnesota. In literature, we must remember Oliver Wendell Holmes, poet, essayist, and pioneer in the treatment of puerperal fever, and S. Wier Mitchell, neuropsychiatrist and renowned novelist. These men are only a few of the many who, in addition to medical service, accomplished much for their country.

We are thankful that American medicine is the best in the world today; that the death rate is lower than ever before; that infant and maternal mortality is at a new low; that the decline in mortality from tuberculosis and the infectious diseases of childhood has been next to marvelous; that because of the aids of medical research many of the "captains of the men of death" are no longer dreaded; that surgery of the heart and brain are undertaken without fear of infection.

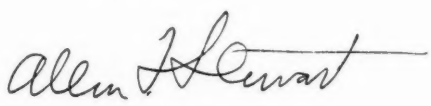
We are thankful to labor in a land where freedom is still more than a myth and individual enterprise can accomplish so much. Furthermore, we are thankful that in the ranks of American medicine are those who believe that only in a free economy can the greatest good in medicine be attained and that any effort to regiment those who dispense medical services will spell the deterioration of a great service. To those who have staved off the encroachments of the socialist planners upon medicine we render thanks and pledge constant support.

It is fitting that soon after Thanksgiving follows the feast of the Nativity. There must be a great void in a land where Christmas is unknown, for Christmas is a time when all that is good, noble, and unselfish in the human heart comes to the surface and men, moved to see how much good is in their fellows, respond with like feelings for their neighbors. For all our faults, it is encouraging that there is always hope for better things to come among a people who celebrate Christmas. The physician can feel that perhaps he touches the outer fringe of glory when he follows in the footsteps of One Who went about doing good and healing the sick. At Christmas we honor the birth of the Great Physician.

Perhaps every generation has thought it faced the greatest trials. Ours is no exception. Let us pause and reflect, thankful that we are free, that we enjoy so much in this great land.

For the Texas Medical Association and its official family I wish every member a joyous Christmas season and a happy New Year, happy because in the face of threat and danger is still the opportunity for soul saving work and service. Let us consecrate ourselves to the task ahead, face each day with its problems, and have faith that the future will be good.

During this holiday season I salute you, the doctors of Texas. May you have that greatest of all blessings, Peace.



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Volume 47 **Austin, Texas, December, 1951** **Number 12**

CONQUEST AGAINST TUBERCULOSIS INCOMPLETE

Of 40,000 persons who die annually in the United States from tuberculosis, approximately one-sixteenth reside in the Lone Star State. For example, among 33,357 persons who died in the United States in 1950 from the disease 2,005 were Texans.

As physicians are aware, mortality is not the entire story. In the past the death rate has been used as a guide to progress. At present the case report rate is used, although it is realized that many cases remain undetected. The search for these unknown cases is a continuing fight. In the future perhaps the focus should be on the amount of tuberculous infection in the population, in contrast to tuberculous disease alone.

Statisticians attribute long term gains in combating tuberculosis largely to the success of the antituberculosis campaign. The educational program of the National Tuberculosis Association and its affiliates has helped to remove the stigma from the diagnosis of tuberculosis and has stimulated an early investigation of suspicious symptoms, but more than that, its statistical effect in reducing the death rate is incalculable.

Dr. David T. Smith, Durham, N. C., a past president of the National Tuberculosis Association, stresses the importance of formulating a more comprehensive case-finding program, acquiring adequate sanatorium beds, and providing effective follow-up and rehabilitation. He is of the opinion that no state or county in the United States has an entirely adequate case-finding program today. Furthermore, he maintains, this type of program cannot function efficiently without sufficient sanatorium beds for persons with active disease discovered by the survey. The minimal ratio which he thinks would be necessary is at least three beds for each annual death, which would mean 39,291 beds in the United States or approximately one-third more than are available at present.

Mass x-ray surveys have been criticized as excessively costly, measured by the number of active cases discovered. In terms of the individual patient this argument might be valid, but in view of the primary object of the tuberculosis

program—detection and isolation of spreaders of the disease—the discovery of even one apparently healthy person harboring tuberculosis may eventually save the public hundreds of thousands of dollars. In Texas community surveys one of every 100 persons screened has been found, on final diagnosis, to have tuberculosis in some form, active or inactive.

Some authorities have maintained that mass surveys are not truly representative samples and

that even more tuberculosis of a more dangerous type might exist in those not reached by the survey. The routine roentgenographic examination of patients admitted to hospitals and clinics has disclosed a rate of 10 to 18 per 1,000 and has shown many more moderately advanced and far advanced cases than radiographic surveys of apparently healthy persons. It is estimated that more than 40,000 patients with previously unrecognized tuberculosis are admitted to general hospitals in the United States each year.

Apparently healthy persons harboring active disease sometimes have no symptoms and usually pass successfully all examinations, including x-rays of the chest. Thus, the discovery of tuberculous infection often must depend upon the tuberculin skin test.

In tuberculosis therapy, new drugs and surgical techniques are being combined successfully with rest. Rehabilitation, actually an important part of treatment, should begin when the disease is diagnosed and continue until the patient is readjusted to community life after discharge from the hospital. Vocational counseling and training, medical social service, and occupational therapy constitute a complete rehabilitative program.

Medical research on tuberculosis is sponsored by many agencies. Currently the voluntary tuberculosis associations through grants to scientific investigators are sponsoring thirty-five medical research projects in fourteen states and the District of Columbia. Dr. Daniel E. Jenkins, Baylor University College of Medicine staff member, is studying the value of mycomycin under such a grant.

Adequate case finding, treatment, rehabilitation, research, and education cannot be achieved without expenditure of large sums of money, one important source of which is the sale of Christmas seals. The Christmas seal for 1951, already a familiar sight, appears with this editorial: a jolly, smiling Santa Claus with the double-barred cross, the registered emblem of the National Tuberculosis Association. The annual tuberculosis seal sale, which this year began November 10 and will continue until December 25, is one that Texas physicians and their families traditionally support.

WERE YOU THERE?

Did you ever wonder how attendance at your county medical society meetings compares with attendance in other counties?

A questionnaire sent at random to county societies of varying sizes and in diverse geographical areas of the state showed the following average attendance at regular meetings of the organizations:

	Membership	Attendance
Dallas	765	125
Bexar	413	60-75
Tarrant	370	75

	Membership	Attendance
El Paso	160	60
Bell	102	75
Lubbock-Crosby	90	35
Tom Green-Eight	86	50
Taylor-Jones	74	45-50
Hidalgo-Starr	69	30-35
Wharton-Jackson-Matagorda-Fort Bend	50	35
Grayson	45	20
Brazos-Robertson	31	18
Anderson-Houston-Leon	31	15
Ellis	30	20
Brown-Comanche-Mills-San Saba	27	17
Armstrong-Donley-Childress-Collingsworth-Hall	27	14
Nolan-Fisher-Mitchell	24	20
Williamson	24	12
Kerr-Kendall-Gillespie-Bandera	23	15
Brooks-Duval-Jim Wells	20	10
Colorado-Fayette	18	11
LaSalle-Frio-Dimmit	17	8-10
Nacogdoches	13	10
Washington	12	8
Hays-Blanco	12	7

Although emergencies make full attendance at county society meetings an impossible goal, officers might consider adopting techniques which would encourage greater participation by the membership. Well planned and executed scientific programs on subjects of general interest, the inclusion of medicolegal and economic topics of concern, different methods of presentation (for example: panel discussions, symposiums, clinicopathologic conferences, and case demonstrations with patients as "exhibits"), streamlined business procedures, and periods for relaxation and fellowship may help to turn lagging interest into real enthusiasm. Regardless of the quality of any society's programs, however, every member must accept the responsibility to be present when at all possible.

The county medical society is the fundamental professional organization for each physician. From it he should obtain scientific, economic, legal, legislative, and political information and through it he should contribute of his talent, education, and experience to other physicians, medical organizations, and the community. This double function of the county medical society cannot be fulfilled, however, unless the members attend its meetings.

THAT MEDICINE MAY ADVANCE

Much of the basic work of the Texas Medical Association is carried on by its councils, and their membership is carefully chosen to assure diligence and ability.

Two councils comprised entirely of ex-officio members exert considerable overall authority. The Executive Council, consisting of the officers, delegates to the American Medical Association, chairmen of the other councils and members of the Council on Medical Jurisprudence, chairman of the Committee on Public Relations, and the Executive Secretary, is directed by the By-Laws of the Association to meet twice yearly. The council advises with officers and committees and fixes policy subject to approval of the House of Delegates at its next session, thus bolstering the program of the Association throughout the year. An important responsibility of the Executive Council is to ask the President to call for the resignation of any member of the Association holding office but failing to perform the duties of that office.

The War Council is made up of essentially the same personnel as the Executive Council. It is intended to function only in time of war or grave disorder when the House of Delegates, because of its size, could not act. The War Council in an emergency can accept reports of officers and committees, elect officers and council members, and legislate. A still smaller ex-officio group is authorized to act as the War Council if governmental order prohibits the gathering together of more than twenty persons.

The other five councils are organized on a different basis from the Executive and War Councils. They are composed of five members each, with overlapping terms of office of five years. One member of each council is elected annually by the House of Delegates upon nomination by the President-Elect, and tenure on any one council is limited to ten years. The President and the Executive Secretary of the Association are ex-officio members of each council.

The Council on Medical Defense was established to discourage malpractice and malpractice suits. It was of invaluable assistance to physicians threatened with legal action before medical indemnity insurance became common, and even now the advice of an attorney retained by the Association and certain financial benefits help the physician facing a suit. The council has helped to keep malpractice insurance premiums at a reasonable rate and has done much to educate members of the Association on problems relating to malpractice.

The Council on Medical Jurisprudence, long known as the Committee on Legislation, attempts to carry out the wishes of the House of Delegates as regards state or national legislation dealing with medicine and health. In instances where the House has taken no action on such measures, the council may use its discretion.

The Council on Scientific Work occasionally makes recommendations about scientific matters referred to it, but its chief responsibility lies in arranging for the annual sessions of the Association. Beginning work on the next annual session as soon as one is completed, the council oversees and coordinates the activities of the officers of the nine scientific sections and cooperates with the Committees on General Arrangements, Scientific Exhibits, Memorial Exercises, and Television, and such other groups as are responsible for any part of the program.

The Council on Medical Economics studies fees for medical service, health and accident insurance policies, and other problems in the medico-economic field, making recommendations and taking action where it is justified. Under the general supervision of this council, a placement service for physicians is operated from the central office.

The Council on Medical Education and Hospitals is responsible for problems of undergraduate and postgraduate medical education, the relationship of physicians to hospitals and to public health, and the care of patients in hospitals. Members of this council are all members of a Special Committee on Postgraduate Work named this year to coordinate postgraduate medical programs throughout the state.

When the Constitution and By-Laws of the Association were revised in 1948, it was the intent of those formulating the instrument that the councils of the organization should be charged with the broader aspects of medicine and health, whereas more specific problems should be assigned to committees. Although in practice this conception has not worked out perfectly, the councils are comprised of physicians with broad vision and the best interests of the medical profession and the health of the public at heart. Even though occasionally they must be concerned with minute details and what seems to be petty problems, they never lose sight of the long range objectives of the Association. Some of the wisest planning is done and actions with some of the most far-reaching results are taken by the Association councils, the members of which are named in the Organization section.

OFFICE PLAQUES AID PUBLIC RELATIONS

An attractive office plaque, described and pictured on advertising page 54 of this issue of the JOURNAL, has been designed by the American Medical Association to help practicing physicians in their nationwide public relations effort.

Addressed "To All My Patients," the card invites the patient to discuss frankly with the physician any questions regarding the physician's fees or services and reminds him that the best medical service is based on a friendly mutual understanding between doctor and patient. Decals indicating the physician's affiliation with a particular state or county medical society may be affixed to the plaque. Physicians may order the card by sending $1 to the A.M.A. Order Department, 535 North Dearborn Street, Chicago 10.

Prior to release of the A.M.A. plaque, the Committee on Public Relations of the Texas Medical Association, acting on a suggestion made by Dr. John W. Cline, A.M.A. President, had prepared a desk card which reads as follows:

"We shall esteem it a favor if you will discuss frankly with us any source of dissatisfaction arising from our services. It will be eliminated by free discussion between us."

This card will be included in a kit dealing with the establishment of grievance committees and emergency telephone services which is to be mailed in January to the chairmen of public relations committees of most county medical societies. Thereafter the card may be obtained free of charge upon request.

Members of the Texas Medical Association are encouraged to use one or both of these aids to improve their personal relations with their patients and in turn to support at the most effective level the public relations program of the medical profession.

ORIGINAL ARTICLES

RECENT ADVANCES IN TREATMENT OF TUBERCULOSIS

DANIEL E. JENKINS, M.D., Houston, Texas

To the casual observer the entire problem of tuberculosis as it occurs in the United States today would appear to be undergoing a gratifying decline, as evidenced mainly by the dwindling mortality rate. Much too narrow a viewpoint results, however, from fixation of thinking upon the death rate. The physician is concerned with the living, not the dead, and with morbidity, not mortality. How many people are ill, not dead, with tuberculosis? The number of known and reported cases over the country as a whole is *not* pursuing the same downward trend which the death rate enjoys, and in certain areas, particularly in southern and western United States, the number of reported cases of tuberculosis is increasing.[5]

Throughout the world tuberculosis takes the awesome toll of five million deaths each year from among the fifty-odd million people who are afflicted with it. It strikes early in life and is currently said to be the chief cause of death among children in the world.[2] In the United States it is still the leading killer among people in the age group from 15 to 45, the most enjoyable and productive period of the life span. Old age confers no absolute immunity, and the age at which deaths occurs from tuberculosis is steadily advancing, particularly among white males. The problem is further intensified by the chronic and often relapsing course of the disease with its subsequent social and economic devastation. For the patient who dies of tuberculosis, and indeed for many patients who recover, there has been a long, costly period of mental and physical suffering. The challenge which this picture imposes unfortunately can be met only in small part by recent advances in the treatment of the disease.

From the Department of Medicine, Baylor University College of Medicine, and the Houston Tuberculosis Hospital.

Read before the Section on Internal Medicine, Texas Medical Association, Annual Session, Galveston, May 1, 1951.

DIAGNOSIS

Among the greatest of aids to successful treatment has been the emphasis placed in recent years upon modern methods of case finding[2] and the diagnosis of pulmonary tuberculosis in its early stage. According to Anderson, in 1949 some 14,000,000 people received chest roentgenograms in this country through mass screening programs directed at tuberculosis case finding. Such surveys uncover a predominance of minimal tuberculosis, and if prompt diagnosis and treatment can be carried out in this stage of the disease, great personal and financial losses frequently can be averted, much time and suffering avoided, and the certainty of therapeutic results greatly enhanced. Upon the physician, however, rests the grave responsibility of accurate diagnosis, an accomplishment which in some instances may involve prolonged and repeated studies. Such studies should not be conducted under conditions which favor spread of the disease and neither should lengthy clinical observation be permitted where the differential diagnostic possibility of a carcinoma exists.

The physician's judgment may be sharpened considerably by accurate and reliable laboratory methods for isolation of the tubercle bacillus. However, great

emphasis must be placed on meticulous handling of specimens and rigid adherence to bacteriologic techniques if good results are to be obtained. The author repeatedly has encountered failure of some general hospital laboratories to isolate tubercle bacilli from positive sources, when identification easily could be accomplished in laboratories where more attention to and interest in careful techniques was shown.

When direct smear or concentrate of the sputum fail to reveal acid-fast bacilli, the clinician should search the fasting gastric contents, or possibly the tracheal washings, the laryngeal swab, or the bronchoscopic secretions. As the fasting gastric contents are commonly employed, care must be taken to see that the specimen arrives in the laboratory within an hour and is concentrated and cultured promptly. A twenty-four hour delay will result in a loss of nearly 50 per cent of cultures that would be positive with immediate handling, a fact which makes obvious the fallacy of mailing gastric contents to an out-of-town laboratory.[8] Great care also must be taken in concentrating any specimen for subsequent culture or guinea pig inoculation since adequate homogenization, the use of a proper digestant, and the time required to carry out the procedure may influence greatly the number of viable tubercle bacilli which survive.

In recent years culture methods have largely supplanted animal inoculation as a routine procedure, although the latter still remains the highest court of appeal. The culture is cheap, relatively fast, and when properly used is equally as sensitive, if not more so, than guinea pig inoculation. Furthermore, it is adaptable to detecting in tubercle bacilli the development of resistance to the commonly used antimicrobial agents. To insure the preparation of sensitive and reliable culture media, a laboratory must have special equipment and interest in the problem or disappointing results invariably will follow. Reliable and sensitive cultures aid in diagnosis but are also an important guide to therapy, as the attainment of bacteriologic negativity by the patient is almost always a necessary accompaniment of good treatment. The struggle toward perfection of culture methods may result in occasional positive cultures which frequently are hard to interpret in the light of otherwise satisfactory clinical progress. Nevertheless, Chong[4] and Abeles[1] independently have shown that the occasional positive culture has significant prognostic value in that it heralds an increased incidence of relapse.

In recent years attempts have been made to isolate and identify specific humoral antibodies as an aid to diagnosis and prognosis in tuberculous patients. The most notable work is the hemagglutination test of Middlebrook and Dubos[12] which has been given clinical amplification by several investigators. The majority of workers have employed it with varying degrees of success as a diagnostic test for the presence of active tuberculous disease. As pointed out by Smith, however, its chief value may lie in its use as a method for study of immunologic response in tuberculosis.[14] At present the test has not received sufficient standardization and simplification to be of help in routine clinical problems.[16]

THERAPY

Medical treatment of tuberculous patients in hospitals and sanatoriums involves prolonged segregation, a problem which has its peculiar difficulties. None of the advances of modern science can help the patient who, because of ignorance, hostility, or adverse social circumstances, will not accept the limitations which his treatment demands. The increase in many institutions throughout the country of trained personnel such as medical social workers, occupational therapists, rehabilitation specialists, and psychiatrists, whose time and effort are spent in helping to solve such problems of adjustment, is resulting in better patient cooperation and fewer desertions. Apart from institutions, the strides being made in helping to solve the social aspects of illness, from financial aid for the patient's family to vocational rehabilitation, cannot help but have a far-reaching effect upon the convalescing patient. Until a speedy and certain cure is found for tuberculosis, the treatment of the disease demands much attention to the social and emotional aspects of illness.

The therapy of tuberculosis, from a clinicopathologic viewpoint, has undergone little fundamental change in the past several years. The greatest therapeutic achievements have revolved around the introduction of effective antimicrobial agents and the perfection of bolder surgical techniques. To this may be added a score of contributory accomplishments, some of which already have been mentioned. Because of the ease with which a few of the more recently acquired tools may be applied to treatment of the patient, there is need for some sober thinking in regard to their use since the chronicity of tuberculosis makes little allowance for shortsighted therapeutic planning.

The most striking deviations from the natural history of the disease have been seen in tuberculous meningitis and in generalized miliary tuberculosis when treated with antimicrobial agents. Although immediate reversal of symptoms frequently is striking, the long-term results of therapy have been less promising, especially in instances when miliary tuberculosis and meningitis coexist. As pointed out by Bunn[3] in his review of the first 100 cases of miliary and meningeal tuberculosis treated in Veterans Administration, Army, and Navy Hospitals with streptomycin

alone, the chances of survival, if the patient remains alive for as long as eighteen months, are good. To get the patient past this crucial point, the tendency has been toward higher dosage and more prolonged therapy with administration of drugs often for as long as a year, and in meningitis patients for at least six months after the spinal fluid becomes normal.

Supplementation of streptomycin by another drug, usually para-aminosalicylic acid, is probably advisable, and in some hospitals intermittent regimens of the two drugs are being used. Whether or not intrathecal streptomycin should be given remains controversial, but it is true that the majority of surviving patients have received it. If streptomycin is given by this method, the dose should not exceed 50 mg. in any one injection. As the introduction of streptomycin into the subarachnoid space almost invariably is followed by an increase in cellular content and protein in the spinal fluid, care must be taken to obtain adequate fluid for diagnostic purposes before giving the drug intrathecally. For the same reasons, difficulty usually is encountered in determining if and when the spinal fluid has reverted to normal unless some intermittent program of intrathecal administration is used when the patient has improved sufficiently to warrant stopping the drug.

Lincoln has reported encouraging results in the treatment of miliary and meningeal tuberculosis in children, using a combination of streptomycin given intramuscularly and intrathecally with Promizole given orally. Her work further emphasizes the importance of using drugs in combination with streptomycin which will in some way enhance the action of the latter.

Pulmonary tuberculosis remains the most important problem. The introduction of new therapeutic weapons perhaps has shortened or made more certain the outcome of some phases of therapy, but it has done little to alter the basic pathologic response of tissue to the tubercle bacillus and hence to change the fundamental problem involved. This problem, in oversimplified language, is one of tissue necrosis, always with the subsequent threat of liquefaction, sloughing, and spread of the disease.[11] The chronicity of tuberculosis is related largely to the inability of the body to destroy these necrotic lesions. The effectiveness with which these caseous foci are handled determines the end result of therapy.

The fundamental therapeutic problem in every case of pulmonary tuberculosis as outlined by Jones[9] consists of the following steps: (1) prevention of further dissemination of infection; (2) resolution of exudative (prenecrotic) lesions; (3) control of residual caseous foci; (4) closure of cavities which have resulted from sloughing caseous lesions; and (5) rehabilitation to a regimen modified to maintain a favorable balance between resistance and residual chronic infection. By keeping this simple outline in mind, the part played by the various therapeutic procedures to be discussed may be more clearly visualized.

Bacteriostatic Agents

The introduction of effective bacteriostatic agents into the treatment of tuberculosis has received widespread attention within the last decade. As the result of extensive investigations, the part which suppression of bacterial activity plays in treatment has been delineated sufficiently well to permit fairly clear description of its actions. To be emphasized is the concept that antimicrobial therapy be incorporated and integrated into a master plan governing the long-term therapy of the patient; otherwise a great injustice to that patient may result.

Suppression of bacterial multiplication in pulmonary tuberculosis by appropriate drugs results in subsidence of most of the constitutional and local symptoms of the disease, in prevention of further dissemination of the infection, and in the hastening of resolution of the prenecrotic areas of disease. Studies in pathology by several workers have shown that the residual necrotic lesions are little affected, and, depending upon their character and extent, they should be dealt with by other appropriate methods of therapy.

The choice of drugs and methods of administration are being improved continually. While streptomycin remains the most effective single drug, it possesses the disadvantages of toxicity in high dosage and provocation of bacterial resistance with any dose. Dihydrostreptomycin is not of proved superiority over streptomycin, and the administration of either drug in a dose of 1 Gm. per day, given in one intramuscular injection, is sufficiently high to be therapeutically effective, yet without significant toxicity in the average case of pulmonary tuberculosis.[17] Doses of less than 1 Gm. per day are of inferior therapeutic effect and do not lessen toxicity sufficiently to warrant their use. The increased efficacy of 2 Gm. per day over lower dosage has been proved, but the increase in toxicity makes the use of this dose undesirable except in grave circumstances.

The fact that streptomycin administration is accompanied by the emergence of resistant strains of tubercle bacilli by the end of six to eight weeks of therapy in more than 50 per cent of patients has stimulated effort to avoid this complication. It is established firmly that emergence of bacterial resistance may be delayed by giving streptomycin intermittently every second or third day or by combining streptomycin with simultaneous administration of para-aminosalicylic acid (PAS), the latter in a dose of 12 Gm. or more per day. Tempel and his co-workers have shown further that intermittent streptomycin given every

third day coupled with daily PAS is apparently the most effective regimen yet devised to delay the emergence of streptomycin resistant tubercle bacilli without loss of therapeutic efficacy.[15]

Capitalizing upon the fact that the delay in emergence of streptomycin resistant tubercle bacilli resulting from combined streptomycin and PAS might allow more prolonged, effective therapy, D'Esopo has pioneered the long-term use of such combined drug treatment. Although the full implications of his work will not be known until further studies have been completed, it is evident that occasionally, despite the presence in patients of persistent cavities or extensive highly resistant flora may become manifest. In still others a predominantly sensitive flora may remain after long-term treatment. The importance of terminating prolonged, combined antimicrobial therapy with definitive collapse or surgery is obvious from studies conducted by Medlar which show that even after many months of drugs the residual necrotic foci may still contain viable tubercle bacilli.

The following case illustrates a few of the problems involved in long-term antimicrobial therapy:

In November, 1947, a 50 year old Negro housewife began to have symptoms of fever, cough, and expectoration of blood-streaked sputum. As these symptoms continued, she began to experience weight loss and weakness. She consulted a physician who, after examining her and obtaining a chest

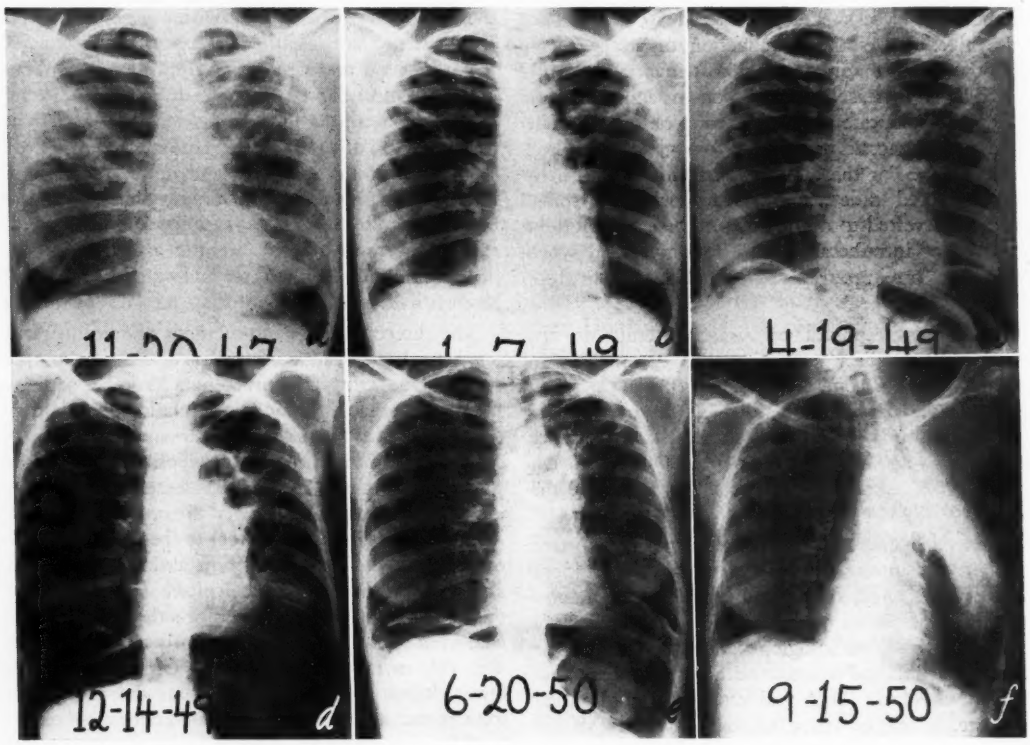

FIG. 1a. Chest roentgenogram of a 50 year old Negro woman with pulmonary tuberculosis made November 20, 1947.

b. A film made January 7, 1949, ninety days after the start of administration of streptomycin showing clearing of the soft disease in both lungs.

c. A roentgenogram made April 19, 1949, when pneumoperitoneum was produced.

d. A roentgenogram made eight months later showing reactivation of the disease in the upper lobe of the left lung.

e. A roentgenogram made June 20, 1950, six months after *d*, during which time streptomycin with para-aminosalicylic acid was administered. Note that the cavities above the left hilus had closed.

f. A roentgenogram made September 15, 1950, after a thoracoplasty with removal of seven ribs was performed.

necrosis, the bacterial population is suppressed sufficiently to render the recovery of tubercle bacilli difficult or impossible for as long as the drugs are given, up to six to twelve months or longer. Whereas resistant tubercle bacilli may appear in some patients during such treatment, in others resistance is not evident until the drugs are stopped, at which time a roentgenogram on November 20 (fig. 1a), made a diagnosis of pulmonary tuberculosis. Her sputum at that time was positive for acid-fast bacilli. She was advised to pursue a program of bedrest at home but was unable to carry out this advice completely. However, during the ensuing months, she lost no more weight and her symptoms became no worse. A bed finally became available at the Houston Tuberculosis Hospital, where she was admitted August 16, 1948.

A chest roentgenogram made at that time and compared with the film of the previous November revealed some spread of disease into the right lung base. In addition the large cavity in the upper lobe of the left lung had become larger. Examination of the chest after admission of the patient revealed, in addition to scattered, medium coarse, inspiratory, and post-tussive rales heard in both lungs, a wheeze over the upper lobe of the left lung. Signs of cavity were present also in the upper portion of the left side of the chest. At a staff conference shortly after admission, it was decided to do a bronchoscopy and start the patient on streptomycin. The drug was administered in a dose of 1 Gm. per day beginning September 1 and was continued for ninety days with considerable improvement and clearing of the soft disease in both lungs (fig. 1b). The bronchoscopy November 10 showed general reddening throughout the entire tracheobronchial tree, but no other abnormalities were noted.

Bedrest was continued in an effort to stabilize the disease in the right lung sufficiently to permit a left thoracoplasty. In March, 1949, at another staff conference it was decided that pneumoperitoneum should be induced to stabilize further the disease in the right lung, and the procedure was started April 1 (fig. 1c). In June the patient began to note a return of fever, cough, and progressive weight loss, and by August the wheeze which was audible over the upper lobe of the left lung returned. Realizing that the disease in this portion of the left lung was reactivating, the surgeons for the first time consented to a left thoracoplasty, but by

TABLE 1.—*Streptomycin Sensitivity Studies Using Solid Media (Case 1).*

Date	Control	Concentration of Streptomycin (mcgm./ml. of media) 1.0	3.5	10	100
	Streptomycin alone, Aug.-Nov., 1948				
8-30-49	4+	3+	0	0	0
	Streptomycin and PAS, Jan.-Nov., 1950				
3-14-50	1+		2+	0	0
5-9-50	4+		4+	2 col.	0
7-11-50	2+		2+	1+	0
8-9-50	4+		4+	4+	0
8-30-50		Thoracoplasty completed			
10-6-50	3+		0	0	0

Actual colony counts are recorded if number of colonies is less than 50.
1+=50 to 200 colonies.
2+=innumerable colonies.
3+=growth not quite confluent.
4+=surface of medium entirely covered.

December, when the waiting list for surgery had dwindled, the disease in the upper lobe of the left lung and the patient's general condition contraindicated surgery (fig. 1d).

Despite the fact that the patient had received 90 Gm. of streptomycin, the tubercle bacilli which were present in her sputum remained predominantly sensitive to streptomycin, as determined by sensitivity tests performed on solid media (table 1). On December 29, 1949, streptomycin was restarted in a dose of 1 Gm. per day intramuscularly along with para-aminosalicylic acid 12 Gm. daily by mouth. These drugs were continued for ten months, during which time the patient improved steadily, gained in weight, and lost her fever and cough; the newly-opened cavities just above the left hilus also closed (fig. 1e).

A thoracoplasty with removal of seven ribs was performed finally in two stages during August, 1950, and the patient has remained symptomatically improved, although her sputum remains positive (fig. 1f).

Among the points to be emphasized in the above case report is the fact that the chronicity of management and the persistently positive bacteriologic tests permitted careful observations to be made upon the speed and extent of development of resistance toward streptomycin by the tubercle bacilli found in the patient's sputum. As shown in table 1, the sensitivity test made August 30, 1949, revealed the emergence of tubercle bacilli resistant only to 3.5 micrograms per milliliter of streptomycin as a result of 90 Gm. of streptomycin having been given in a previous ninety-day period. In this respect the patient was fortunate since it is well established that 70 per cent of the patients who receive streptomycin alone over a ninety-day period for chronic cavitary disease harbor tubercle bacilli that are resistant to 10 micrograms or more per milliliter of streptomycin. After combined streptomycin and PAS were started, the emergence in the sputum of tubercle bacilli resistant to 10 micrograms per millileter of streptomycin did occur but slowly, and it is obvious that no organisms which would grow in concentrations of 100 micrograms per millileter were present.

Since only multiplying micro-organisms are capable of allowing a predominantly resistant bacterial flora to develop, it can be assumed that the lesions in a patient's lung where such phenomena occur are lesions in which tubercle bacilli are multiplying actively, as, for example, in a cavity.[13] The long sustained suppressive effect of combined streptomycin and PAS upon the multiplication of tubercle bacilli probably explains the slow emergence of resistant strains and the fact that a high degree of resistance did not develop, but the continued presence of an open cavity favored the development of resistant organisms. Subsequent to thoracoplasty it is apparent that streptomycin-resistant tubercle bacilli completely disappeared from the sputum (table 1), a phenomenon not commonly observed. This reversal in all probability is accounted for either by cavity closure or by interrupted communication between the source of the resistant organisms within the lung and the bronchial tree, as a result of thoracoplasty.

The continued favorable clinical course of this patient and the fact that the lesions which now are discharging tubercle bacilli may be amenable to further antimicrobial therapy illustrate the importance of using these drugs judiciously and incorporating them into the more complete program of total therapeutic management.

Streptomycin remains unsurpassed by any other single antimicrobial agent insofar as effectiveness in the treatment of human tuberculosis is concerned. As mentioned previously, para-aminosalicylic acid is also an effective bacteriostatic agent against the tubercle bacillus but is weak when compared with streptomycin. Its greatest usefulness lies in simultaneous administration with streptomycin, but often it is employed alone in patients whose organisms are strep-

tomycin-resistant or in patients in whom the prevention of streptomycin resistance is important because of impending major surgery or because of a hopelessly fatal outcome. Worthy of reemphasis is the fact that at the present time there are few, if any, indications for the use of streptomycin alone in tuberculosis, and since the simultaneous addition of PAS to the drug program allows such major advantages, the two drugs always should be used together. Since PAS also may be given safely in a parenteral form,* the patient need not be deprived of its use because of gastrointestinal complaints or failure to cooperate.

The introduction of Benemid, a new, apparently nontoxic substance which delays excretion of PAS by the kidneys with resulting rise in blood levels, appears promising, but it has received insufficient clinical trial to make further statements at this time.[16]

Numerous other chemotherapeutic agents are under study and have been reviewed in admirable fashion by King.[10] Most of these agents are antimicrobials with the exception of ACTH and cortisone. That these latter drugs influence the course of tuberculous infection by altering the response of the host has been observed, but since this alteration may prove harmful, ACTH or cortisone should not be given to any patient who has active or questionably active tuberculosis.[16]

Neomycin, another antibiotic discovered by Waksman, possesses great inhibitory action against the tubercle bacillus, but it is highly nephrotoxic and produces deafness in the majority of patients who receive it for prolonged periods. Therefore, it is unsuitable for clinical use.

Terramycin is under clinical trial in several Veterans Administration hospitals, but it does not appear to have a pronounced effect upon the course of tuberculosis in man. Viomycin, a newer antibiotic isolated simultaneously by workers at Charles Pfizer and Company in Brooklyn and Parke Davis Company in Detroit, appears to have a significant bacteriostatic effect upon tuberculous infection in human beings. It also possesses certain toxic features characterized by alterations in some of the serum electrolytes and, in addition, has most of the toxic properties of streptomycin. Since it looks promising, it is being investigated further.

Amithiozone,† a thiosemicarbasone developed by Domagk, has received extensive clinical trial in Germany and more recently in the United States.[7] Its tuberculostatic action is roughly comparable to that of PAS, but it possesses greater toxic properties than PAS so that its field of usefulness appears to be less. Prolonged therapy of six to eight months is often necessary to secure maximum therapeutic benefit. Despite the favorable claims of many of the foreign investigators, experience with amithiozone thus far in this country is not very encouraging.

Lupulon, a substance obtained from an ether extract of hops, has been used by Farber in the treatment of tuberculous patients with limited results. The same can be said of Sulphetrone, a new sulfone introduced by English investigators, but in addition Sulphetrone is toxic to most patients.

Surgical Techniques

Perfection of physiologic techniques which allow accurate appraisal of the ability of the lungs to ventilate and to engage in the exchange of respiratory gases, either singly or collectively, has done much to guide the therapist into more rational collapse treatment as well as safer surgical procedures for treating pulmonary tuberculosis. For example, such lung function studies have pointed out the crippling effect which a poorly managed pneumothorax, complicated by fluid and thickened visceral pleura, may have on a lung that contains relatively little disease. As a result, more attention is paid to methods of therapy which allow greater preservation of functioning lung tissue, yet bring the disease under control. In recent years pneumothorax has become a less popular collapse measure because of the frequency of crippling pleural complications, and pneumoperitoneum has become more widely used because it avoids such mishaps. Although pneumoperitoneum is frequently not as definitive a collapse measure as pneumothorax, the former may be used in preparation for eventual surgical procedures, such as thoracoplasty or resection. In this way the disease is controlled without introducing damaging pleural results. However, it should be stated that a good uncomplicated pneumothorax is still an excellent therapeutic weapon.

Newer surgical techniques have added much to the treatment of tuberculosis, but there are a few outstanding procedures which in selected instances accomplish tremendous therapeutic gains for the patient. The decortication of a lung which has been bound down by a tuberculous empyema or by pleural thickening subsequent to an ill-advised pneumothorax is being done with repeated success. The lung which contains extensive caseous residues is a less desirable risk for decortication and reexpansion. In such instances the pleural dead space usually is best obliterated by thoracoplasty. Wright and others[18] have shown that only a few of the lungs which are reexpanded after decortication regain any appreciable ability to participate in gaseous exchange, so that the chief pur-

**Ampules containing 5 or 15 Gm. of a lyophilized PAS powder as the sodium salt are available. This may be given intravenously or subcutaneously as a 1.5 per cent solution after dilution with sterile distilled water or 5 per cent glucose.*

†Also known as TBI-698, *Tibione, Conteben, and Myvizone.*

pose served by such an operation is the obliteration of a pleural dead space.

Pulmonary resection is gaining an increasing number of successful therapeutic results. The principle of removing residual caseous foci or areas of irreparably damaged lung is theoretically sound, but in tuberculosis the hazard of spread of the disease is a constant menace. Refinement of surgical techniques and the use of antimicrobial therapy in conjunction with resection has done much to improve results and minimize complications. It should be emphasized that if major surgery such as resection is contemplated, antimicrobial therapy should be introduced into the therapeutic program in such a way as to guarantee a sensitive bacterial flora and an optimum bacteriostatic effect at the time of operation.

SUMMARY

Tuberculosis claims five million lives yearly from the more than fifty million persons afflicted with this chronic and relapsing disease, which involves long periods of suffering and economic devastation. Some success in combating the disease has been achieved by better methods of case finding and diagnosis in the early stages. However, the most significant advances are concerned with the introduction of effective antimicrobial agents, the perfection of bolder and more physiologic surgical techniques, and improved ways of managing the social, emotional, and rehabilitational aspects of the disease. The most effective bacteriostatic weapon yet known is a combination of streptomycin and para-aminosalicylic acid given simultaneously for prolonged periods. Since the necrotic lesions which persist after such prolonged therapy are never completely eradicated or destroyed by the body, they remain the most important therapeutic problem. It is important, therefore, that a master plan of therapy be created for each patient and that the newer advances in therapy be incorporated into that plan in timely and judicious fashion so that a successful therapeutic result may be achieved and maintained. As yet, there is no such thing as a "quick cure" or a "drug cure" for tuberculosis.

A case report illustrates the problems of long-term antimicrobial therapy.

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ABSTRACT OF DISCUSSION

DR. DAVID MCCULLOUGH, Kerrville: Dr. Jenkins has covered the field of treatment of tuberculosis thoroughly. I should like merely to emphasize two facts which I believe are of great importance. First, is the use of antimicrobial agents only as part of a so-called "master plan" of treatment. It is particularly advisable to coordinate streptomycin therapy with surgery, should it be indicated. The harm resulting from indiscriminate and haphazard use of streptomycin and dihydrostreptomycin is a matter of real concern. Streptomycin is by no means indicated in every case of tuberculosis, and in any given case there is an optimum time for its use. The second fact is the use of streptomycin and dihydrostreptomycin in combination with para-aminosalicylic acid. As a good rule, to which there are few exceptions, it should be stated again that the drugs always should be used in combination.

"PRIVATE PRACTICE OF MEDICINE" ESSAY CONTEST

The sixth annual essay contest for junior and senior high school students under the sponsorship of the Association of American Physicians and Surgeons has been announced. A $1,000 first prize, a $500 second prize, a $100 third prize, and $25 fourth, fifth, and sixth prizes will be awarded for the best essays on the subject "Why the Private Practice of Medicine Furnishes This Country with the Finest Medical Care." The Association of American Physicians and Surgeons invites the cooperation of state and county medical societies and their women's auxiliaries, and points out that competition will begin January 1, 1952, and close March 1.

Details regarding the contest and small package libraries with bibliography may be obtained from Dr. Arthur T. Miltenberger, Chairman, AAPS Essay Contest Committee, Suite 704, 360 North Michigan Avenue, Chicago 1.

Miss Pat Baxter, New Orleans, who won the first prize in the 1951 contest, is now a freshman at Texas Christian University, Fort Worth.

PULMONARY DECORTICATION

RALEIGH R. ROSS, M.D., Austin, Texas

DECORTICATION of the lung was performed first by Fowler[4] in 1893, when the procedure was carried out for a previously drained chronic empyema. Reexpansion of the captive lung was obtained in twenty-eight days. Delorme[1] performed this operation in 1894, described it in detail, correctly denoted the pathologic process as the formation of a shell or false membrane encapsulating the lung, and in 1896[2] applied the term "decortication" to the procedure.

Through the following twenty years, results with this operation were not uniformly successful. Many modifications were developed, attesting to the dissatisfaction of surgeons with their results. Lilienthal[8] in 1915 described exploration of the thorax with primary mobilization of the lung. This technique was applied first to acute and later to chronic empyemas. In 1923, Eggers[3] reported 146 cases of chronic empyema treated by decortication with a mortality rate of 3.4 per cent. In view of the absence of adequate amounts of blood, modern chemotherapy and antibiotics, and present day anesthesiologists, this series of cases is truly remarkable.

In spite of Eggers' success, for almost another twenty years pulmonary decortication was not advanced in the treatment of so-called "captive lungs." As pointed out by Samson and Burford,[11] the general status of decortication at the beginning of World War II left a great deal to be desired. The operation as then practiced was often incomplete. Suppuration and fibrosis were the rule in approximately 50 per cent of the cases. Intact costal cages were the exception. The morbidity and mortality rates remained high, and with little wonder, in the complete absence of adequate blood, chemotherapy, and modern techniques of anesthesia.

The excellent work during World War II on decortication for hemothorax by Langston and Tuttle,[7] Tuttle, Langston, and Crowley,[12] Samson and Burford,[11] and others is familiar to all thoracic surgeons.

In August, 1943, at the suggestion of Dr. Richard Meade,[9] who had continued his interest in decortication since 1929, I undertook this procedure for chronic empyemas. Out of 23 such cases, it has been possible to trace 5; the results of this seven-year follow-up might prove interesting.

FIG. 1a. Case 1. Preoperative roentgenogram showing pyopneumothorax on the right, with about 75 per cent collapse of the lung.
b. Case 1. Ten weeks after decortication of the right lung.
c. Case 1. Seven years after decortication of the right lung for pyopneumothorax.

CASE REPORTS

The following case report is typical and is presented in detail.

CASE 1.—Pvt. M. E. R., a white man aged 19, was hospitalized on March 18, 1943, at his station hospital for seven days because of fever, cough, and sore throat. Three days after his discharge from the hospital, he developed pain in the right side of the chest. On April 2 he was re-hospitalized, at which time a diagnosis was made of lobar pneumonia and acute suppurative pleurisy on the right. April 20 a rib resection with open drainage was performed on the right. August 9 the patient was transferred from his station hospital to O'Reilly General Hospital for further treatment and disposition.

Physical examination revealed a pale, thin white man, 71 inches in height and weighing 131 pounds. There was a vertical scar in the right posterior axillary line overlying the fifth to eighth ribs, at the inferior margin of which was a draining sinus surrounded by hypertrophic granulation tissue. The right side of the chest was flat. The intercostal spaces were narrowed, and there was evidence of marked thickening of the parietal pleura. Routine laboratory examinations were within normal limits. Culture of material obtained from the right pleural cavity by sterile catheter revealed a mixed in-

Read before the Section on Surgery, Texas Medical Association, Annual Session, Galveston, May 1, 1951.

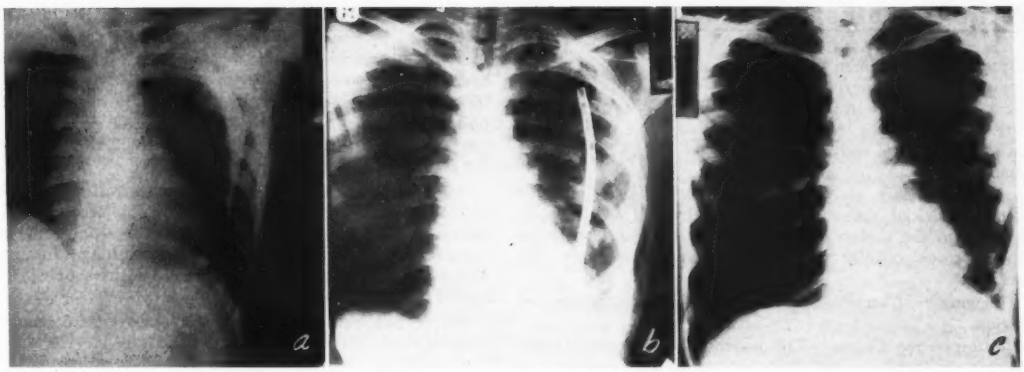

FIG. 2a. Case 2. Preoperative roentgenogram with radiopaque material demonstrating the high position of chronic empyema cavity on the left.

b. Case 2. Immediate postoperative roentgenogram showing multiperforated catheter in the left pleura after decortication.

c. Case 2. Twelve weeks after decortication, showing complete reexpansion of the left lung.

fection with Streptococcus hemolyticus predominating. The vital capacity was 3.2 liters or 72 per cent of normal.

A chest roentgenogram revealed a large pneumothorax on the right, with about 75 per cent collapse of the whole right lung (fig. 1a). There was a noticeable shift of the heart to the left.

Surgical Procedures.—On August 13 and October 6 revisions of the thoracotomy on the right were performed to allow for adequate drainage. Daily irrigations of the empyema cavity with azochloramide, 1 to 3,300 in saline solution, were carried out. January 14, 1944, under intratracheal, nitrous oxide-oxygen-ether anesthesia, a decortication of the right lung was performed. The chest was entered through a posterolateral incision and the old thoracotomy opening was excised. Dissection of the chronic sinus tract was begun, and subperiosteal resection of the ends of the two previously removed ribs was carried out adjacent to the tract for better exposure. The endothoracic plane was encountered without great difficulty and dissection of the parietal membrane, which varied from 1.0 to 1.5 cm. in thickness, was begun. The dissection was carried up beneath the fifth rib, a 12 cm. segment of which was removed subperiosteally. By entering the thoracic cage through the bed of this resected rib, dissection of the apex of the right pleura was greatly facilitated. As dissection of the parietal element in the endothoracic plane was carried cephalad, visceral membrane of the same thickness was peeled off the surface of the lung by sharp and blunt dissection. In this manner, the thickened, membranous sac in the right hemithorax was excised completely.

On using positive pressure of 12 mm. of mercury, the right lung could be reexpanded to fill completely the right side of the chest, although there were many pinpoint openings over the surface of the lung which leaked gas. Closure of the bed of the fifth rib was accomplished after the right pleural cavity was flushed copiously with warm saline solution and sprinkled lightly with 5 Gm. of sulfanilamide crystals. A fenestrated No. 26 French rubber catheter was placed in the right pleura extending to its apex and an airtight closure effected about it in the region of the old thoracotomy opening. It was necessary to suture the lateral margin of the diaphragm to the lateral chest wall about the drain to maintain this airtight closure. The wound was flushed again with warm saline solution and sprinkled lightly with sulfanilamide crystals, and after one small cigarette drain was placed beneath the scapula, closure was carried out using interrupted cotton sutures. The pleural cavity was aspirated, and the patient left the operating room in good condition.

Pathologic Report (G. D. Ayer, Jr., Major, M. C.)—

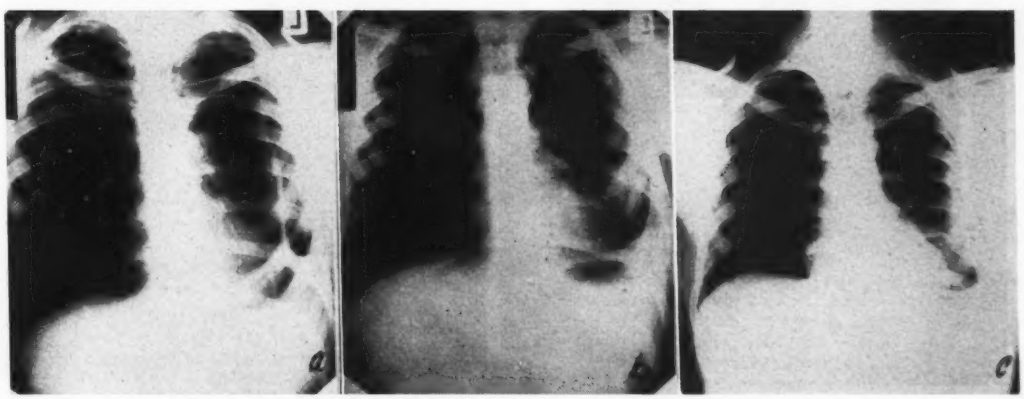

FIG. 3a. Case 3. Preoperative roentgenogram showing chronic empyema cavity on the left, with about 35 per cent collapse of the lung.

b. Case 3. Ten weeks after decortication of the left lung.

c. Case 3. Roentgenogram of the chest seven years after decortication of the left lung for chronic empyema.

Grossly, the specimen consisted of a dark gray irregular mass of tissue measuring 19 by 16.5 by 13 cm. It varied in thickness from 1.2 to 1.8 cm. The surface was rough and irregular, and there was an aperture extending through the mass, forming a saclike excavation 18 by 14 cm. in its diameter.

Microscopically, each block was made up principally of dense cicatricial tissue irregularly infiltrated with lymphocytes. On the surface there was a small amount of fibrin and necrotic cellular debris with granulation tissue beneath it.

Diagnosis: Chronic inflammation and cicatrization of pleura.

Postoperative Course.—The patient's postoperative course was essentially uneventful. Expansion of the right lung was maintained by constant water bottle suction applied to the fenestrated catheter within the pleura. The catheter was kept open by irrigations of .7 per cent sulfanilamide and saline solution. It was shortened daily and removed on the seventh postoperative day. The patient was allowed out of bed at that time, and the draining sinus was closed completely on the twenty-seventh postoperative day.

The soldier was sent on a thirty-day sick furlough and on his return to the hospital was enrolled in the Reconditioning Battalion for six weeks. Subsequent chest roentgenograms revealed complete reexpansion of the right lung (fig. 1b). The postoperative vital capacity was 4.4 liters or 99 per cent of normal.

The soldier was discharged to duty of a type precluding strenuous physical exertion and exposure to inclement

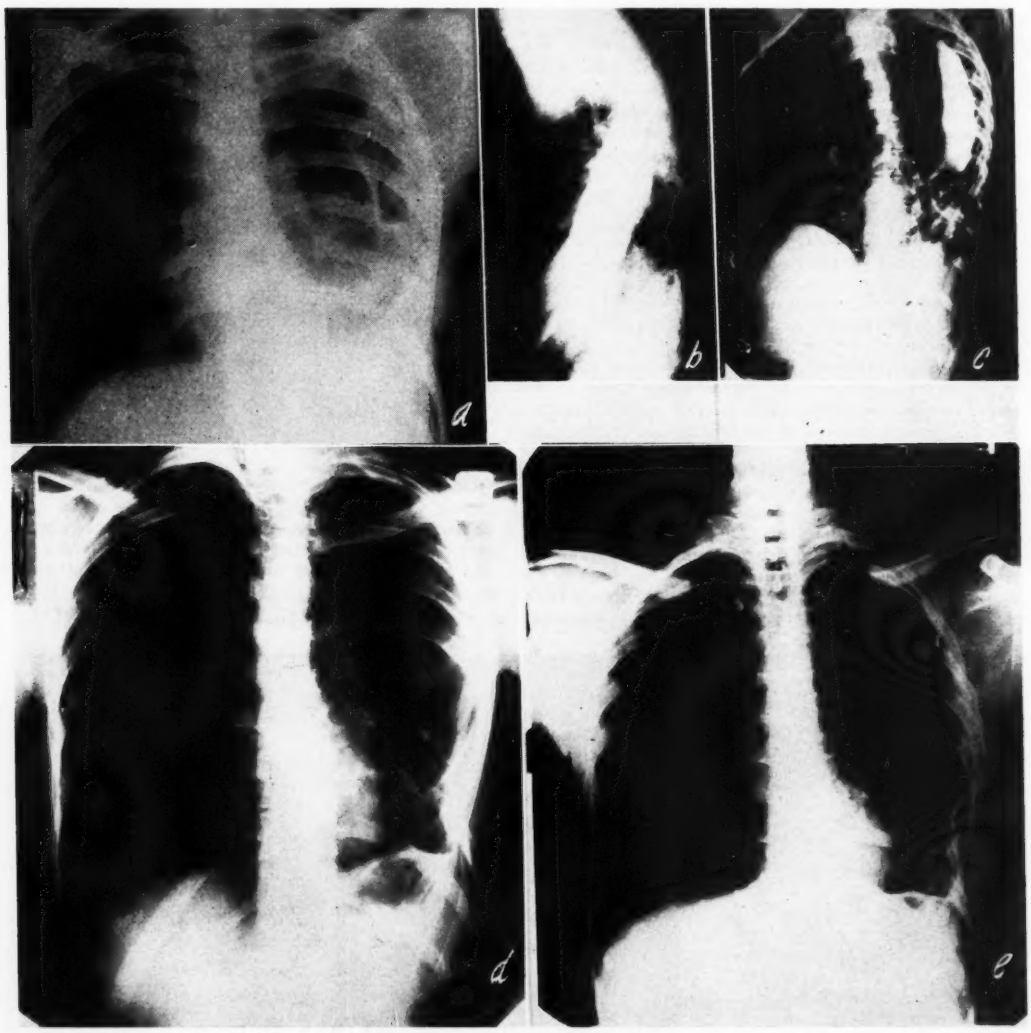

FIG. 4a. Case 4. Preoperative roentgenogram showing a large pyopneumothorax on the left.

b and c. Case 4. Lateral and oblique views with radiopaque material demonstrating the extent of the chronic empyema cavity.

d. Case 4. Fourteen weeks after decortication of the left lung.

e. Case 4. Roentgenogram of the chest seven years after decortication of the left lung for chronic empyema.

weather with the recommendation that he be reexamined in six months, with the possibility in view of returning him to full military duty. The patient is now an aeronautical engineer in apparently excellent health, weighs 155 pounds, and has had no further known pulmonary disease. A recent roentgenogram revealed a fully expanded lung and no evidence of pleural disease (fig. 1c).

The following 4 cases are essentially similar in all respects. Short histories, and preoperative and postoperative roentgenograms are presented.

CASE 2.—Pvt. H. D. A., a white man aged 20, on March 7, 1943, was hospitalized with an "atypical pneumonia" on the right. He was convalescing from this condition when he developed an atypical pneumonia on the left and became acutely ill. On April 22 a left thoracentesis yielded 1,800 cc. of turbid fluid. Five thoracenteses were performed on the left up to May 10, at which time a rib resection was performed.

Culture of material from the left pleura revealed nonhemolytic Streptococci. During the next six months, it became evident that the empyema cavity would not close. Because of its chronicity and high position (fig. 2a), it was believed that the cavity never would become obliterated without surgical help. The vital capacity was 3.2 liters or 72 per cent of normal.

On December 9, 1943, a decortication of the left lung was performed. An airtight closure of the left side of the chest was accomplished about a multiperforated No. 26 French catheter after the left lung had been reexpanded by positive pressure (fig. 2b).

Subsequent chest roentgenograms revealed complete reexpansion of the left lung (fig. 2c). The postoperative vital capacity was 4.6 liters or 102 per cent of normal.

Although a recent chest roentgenogram of this patient could not be obtained, he is enrolled now in law school, has been married five years, and apparently enjoys the best of health.

CASE 3.—D. C. G., a white man aged 19, on April 3, 1943, was hospitalized at his station hospital with a diagnosis of scarlet fever. April 6 he developed a cough, pain in the left part of the chest, and hemoptysis. A diagnosis of pneumonia in the lower lobe of the left lung was made at that time. From April 10 to May 7 a series of eight thoracenteses were performed on the left. In May a rib resection with open drainage of the left empyema was performed.

The patient developed a bronchopleural fistula which subsequently closed. Culture of the fluid from the left pleural cavity revealed hemolytic Staphylococcus aureus. The vital capacity was 3.6 liters or 79 per cent of normal.

A roentgenogram of the chest (fig. 3a) revealed a pneumothorax on the left with about 35 per cent collapse of the left lung. The left dome of the diaphragm was elevated, and there was evidence of marked thickening of visceral and parietal pleurae. February 9, 1944, a decortication of the left lung was performed. This operation was uneventful, except for identification and closure of the old bronchopleural fistula.

Subsequent chest roentgenograms (fig. 3b) revealed reexpansion of the left lung. The postoperative vital capacity was 5 liters or 109 per cent of normal.

The patient is now undergoing store manager training for a large mail order house. He thinks that he is more susceptible to colds but that his general health is as good as it was preceding his empyema. He weighs 195 pounds, and a recent chest roentgenogram revealed an apparently completely expanded left lung (fig. 3c).

CASE 4.—Pvt. W. E., a white man aged 19, on April 14, 1943, was hospitalized at his station hospital with a diagnosis of acute nasopharyngitis. April 17 a diagnosis of primary atypical pneumonia of the left base was made, and confirmed by roentgenogram.

On April 30 a thoracentesis on the left was performed, and 600 cc. of clear straw-colored fluid were removed. There was no growth on culture. There were seven subsequent thoracenteses, and June 1 a segment of the ninth rib was resected in the posterior axillary line and open drainage was established.

Culture of material draining from the left empyema cavity showed hemolytic Staphylococcus aureus and nonhemolytic Streptococcus, both in heavy concentration. The vital capacity determination was 2.8 liters or 64 per cent of normal.

A chest roentgenogram in August showed a large pyopneumothorax involving the left hemithorax. There was approximately 40 per cent collapse of the left lung and moderate pleural thickening (fig. 4a). Roentgenograms taken in October with radiopaque material (Skiodan 20 per cent) injected into the cavity demonstrated in the oblique and lateral views the extent of the pleural space involved (fig. 4b and c).

After several revisions of the left thoracotomy, drainage

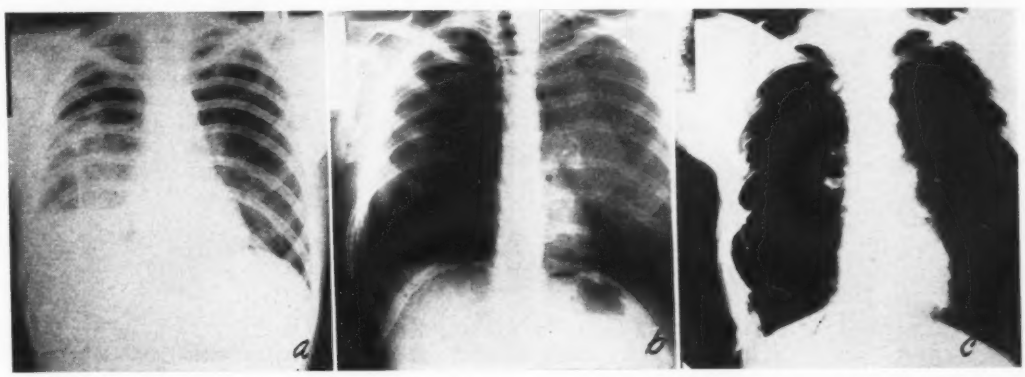

FIG. 5a. Case 5. Preoperative roentgenogram of the chest showing a large pyopneumothorax on the right, with about 50 per cent collapse of the lung.

b. Case 5. Twelve weeks after decortication of the right lung.
c. Case 5. Roentgenogram of the chest seven years after decortication of the right lung for chronic empyema.

from the empyema became minimal, but the size of the cavity remained practically unchanged.

March 30, 1944, a decortication of the left lung was performed. Subsequent chest roentgenograms (fig. 4d) revealed reexpansion of the left lung, less noticeably thickened pleura, wider intercostal spaces, and mild chest deformity as a result of operative trauma. The postoperative vital capacity was 4 liters or 93 per cent of normal.

The patient is now a college student in apparently good health, happily married and raising a family. A recent chest roentgenogram showed old adhesions of the diaphragm and thickening of the pleura of the left side of the chest in the lateral position (fig. 4e).

CASE 5.—Pfc. J. J. S., a white man aged 20, on September 16, 1943, was hospitalized at his station hospital following a severe injury, caused when he was struck by a train. Upon his admission to the hospital, he was in severe shock.

FIG. 6a. Photograph of a patient who has had a Schede thoracoplasty.

b. Photograph of a patient who has had a decortication of the lung.

c. Roentgenogram of a patient who has had a Schede thoracoplasty on the left for chronic empyema.

d. Roentgenogram of a patient who has had a decortication for chronic empyema on the right.

In addition to fractures of the right scapula and fifth, sixth, seventh, and eighth ribs and tension pneumothorax on the right, there was evidence of severe cerebral concussion. The latter cleared, but an empyema developed on the right. Culture of material obtained from the right pleural cavity revealed beta hemolytic Streptococci. The vital capacity was 3.4 liters or 76 per cent of normal.

A chest roentgenogram (fig. 5a) revealed a large hydropneumothorax on the right, with about 50 per cent collapse of the right lung.

Despite active treatment, consisting of closed and later open drainage, the size of the empyema cavity remained practically unchanged.

Consequently, on April 7, 1944, a decortication of the right lung was carried out. Subsequent chest roentgenograms (fig. 5b) revealed complete reexpansion of the right lung. The postoperative vital capacity was 4.5 liters or 102 per cent of normal.

The patient is now a barge captain for a large eastern railroad. He is exposed to all types of weather but has not missed a day's work in the last five years. He weighs 185 pounds and has had no further trouble with his chest. A recent roentgenogram revealed moderate pleural thickening at the right costophrenic angle, otherwise a normal chest (fig. 5c).

It is understood that no sweeping conclusions can be drawn from these 5 cases. However, to my knowledge, no recent seven-year follow-up of decortications has been presented.

Several major changes now exist in the technique, as compared to seven years ago, and it might be interesting to note them.

First, the newer antibiotics make quick and continued "sterilization" of the decorticated pleura a comparatively simple matter. Before, surgeons had to depend upon the sulfonamides alone, parenterally, and by irrigation of the chest. The present types of thoracotomy drains are improved. Originally, I used one long, large multiperforated drain with dependent exit; keeping serum from plugging it was a chore. Now, I use large Pezzer catheters as drains. Usually two or sometimes three drains are used, most frequently one dependent posteriorly and a second high and anteriorly. Rapid reexpansion of the liberated lung thus is obtained.

Constant control suction machines to maintain desired negative intrathoracic pressures are definite improvements over the old water bottle suction apparatus used on these cases. To stay ahead of the rapidly leaking decorticated lung required the full time of one medical corpsman, changing bottles, for the first twenty-four hours.

It is realized that these few cases would be more meaningful if exhaustive pulmonary function tests had been performed originally and could be checked at this time. The follow-up roentgenograms are of different techniques and have been taken at widely separated places. Nevertheless, these films indicate that each of these 5 men has a chest that appears to be functioning normally. His present physical condition and activity attest to his rehabilitation to a completely normal life.

VALUE OF DECORTICATION

To make the value of decortication of the lung felt more keenly, we might compare the final result in a decorticated lung with that of a complete Schede thoracoplasty. One need but look at figures 6a and b

CASE 6.—A 25 year old Latin American man was injured in an automobile accident in September, 1949. He suffered multiple rib fractures, hemothorax on the right, fractured clavicles, fractured cervical vertebrae, and other injuries. After ten weeks of hospitalization he returned to his home in Austin, Texas. He complained of shortness of breath, sharp pain in the right side of the chest, inability to work at all, and daily afternoon temperature elevation. Roentgenograms made preoperatively (fig. 7a) showed his multiple fractures and the increased density of the lower one-half of the right portion of the chest. May 22, 1950, a decortication of an old infected hemothorax on the right was carried out. The patient made an uneventful recovery. A postoperative roentgenogram (fig. 7b) showed almost complete reexpansion of the right lung.

When first seen April 27, 1950, the patient was being compensated at the rate of 100 per cent disability. When last seen October 5, 1950, he had gained 32 pounds and was working as a shoe clerk, and his disability had been dropped from 100 to 30 per cent.

One of the most important modern fields for de-

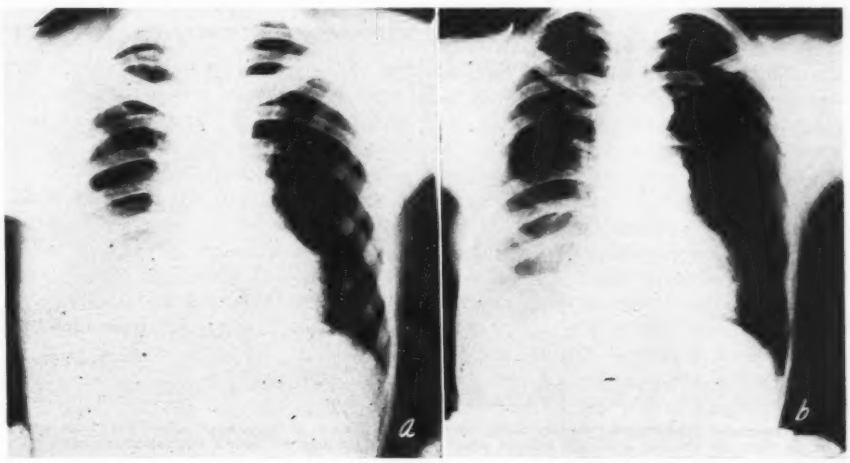

FIG. 7a. Case 6. Preoperative roentgenogram of a patient with chronic hemothorax on the right.

b. Case 6. Roentgenogram made four weeks after decortication of the right lung for chronic hemothorax.

to realize what a tremendous loss of functioning lung parenchyma the patient with the Schede procedure has suffered. His thoracoplasty was performed for chronic empyema with bronchopleural fistula before I did decortications for this same condition. A comparison of the roentgenograms makes it more obvious (fig. 6c). The man who has had his chest wall collapsed to his fixed lung to obliterate a pleural cavity has a frozen hemithorax with 60 to 80 per cent loss of function of that lung. On the other hand, the decorticated lung may resume 90 to 100 per cent of its original efficiency (fig. 6d).

To project the value of decortication of the lung forward, we have but to review the excellent work of those authors[7, 11, 12] already referred to in their treatment of hemothoraces during World War II. To put this on a practical, civilian basis, we might consider another case.

cortication of the lung is in that great host of people carrying chronically collapsed lungs as the result of long-continued artificial pneumothorax. The pneumothorax has become irreversible, the tuberculous focus has been arrested, while 50 to 90 per cent of the function of the involved lung has been lost.

It is in cases of this type, as described by Gurd,[5] Mulvihill and Klopstock,[10] Himmelstein, Miscall, and Kirschner,[6] and others that much apparently can be accomplished to rehabilitate these crippled lungs. The cases, of course, must be carefully selected, but there are a half dozen accepted indications for decortication in this condition. The following case will serve as an illustration.

CASE 7.—B. U., a white woman aged 49, first had an artificial pneumothorax induced on the right for apical cavitary tuberculosis in October, 1942. The lung was kept collapsed for seven years (fig. 8a). During this time, her tuber-

culous focus apparently became inactive. Attempts were made to reexpand the right lung, but they were unsuccessful and pleural effusion resulted. Aspiration of fluid and reinjection of air were necessary to keep the patient's symptoms at a minimum. To increase functional respiratory capacity, avoid extensive thoracoplasty, relieve the patient's symptoms, and obviate the necessity for indefinite aspirations and refills, decortication of the right lung was carried out May 11, 1950. Postoperative roentgenograms (fig. 8b) revealed reexpansion of the right lung.

The patient at present is entirely symptom free, does her own housework as well as light work in the yard, and will be allowed to return to full duty in the field in another six months if her excellent present condition holds.

COMMENT

Decortication of the lung first was described fifty-eight years ago. There have been two eras of its revival and reapplication, approximately twenty-five years apart. The first revival was stimulated by World War I in the treatment of chronic empyemas, and then in World War II it was applied to the treatment of hemothoraces. With improved techniques, modern antibiotic drugs, blood banks, and present day anesthesia, decortication of the lung has proved its value in the above mentioned conditions and also in the chronically collapsed lung due to long-standing pneumothorax.

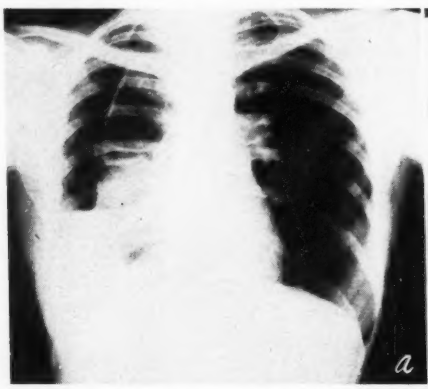

FIG. 8a. Case 7. Preoperative rentgenogram showing chronic hydropneumothorax on the right, the result of artificially induced pneumothorax for the treatment of pulmonary tuberculosis.

b. Case 7. Roentgenogram made three years after decortication of the right lung for chronic hydropneumothorax.

SUMMARY

Five cases of decortication of the lung for chronic empyema with seven year follow-ups are presented.

Improvements in techniques during the last seven years are noted.

The advantages of decortication over thoracoplasty are described. Its application to hemothoraces in civilian life is pointed out. Its possibilities in the treatment of captive lungs beneath old irreversible artificial pneumothoraces are discussed. Case reports illustrative of these applications are presented briefly.

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ABSTRACT OF DISCUSSION

DR. CLIVE R. JOHNSON, Fort Worth: I shall confine my remarks to one aspect of the pathology of empyema as it pertains to pulmonary decortication. Following the advent of the sulfonamide drugs and other antimicrobial agents, certain alterations in the clinical manifestations of empyema were noted. The number of serious pulmonary infections and the percentage of complicating empyemas decreased, but in the empyemas seen, there was noted to occur a distressingly high incidence of fibrinous loculations in the pleural space. A chronic empyema which was difficult to treat resulted. Apparently these alterations in the pathologic picture can be explained in part by the absence of lytic substance resulting from the effects of the antibiotics on bacterial growth and cellular function.

In the light of these observations it is interesting that recently substances which have lytic action on blood clots and other coagula have been introduced. One component, streptokinase (SK), is a fibrinolysin factor and has been

successfully used in the treatment of spontaneous traumatic and postoperative intrapleural hemothorax. The clots are dissolved by the agent so that aspiration is possible through a catheter or hollow needle. Results to date have been good. Streptodornase (SD) is a nucleoprotein factor and is of greater importance in the treatment of older or contaminated hemothoraces and empyemas.

In the management of hemothoraces and empyemas one must bring to bear a balanced therapy. Early complete and frequent evacuation of the pleural space is important in the prevention of these conditions. Streptokinase and streptodornase will be useful in many cases. When it is seen that complete restitution of normal intrathoracic structure and function is not going to be attained by these conservative procedures, pulmonary decortication must be applied without undue delay. This operation has provided consistently good results as has been shown by Dr. Ross's report of cases followed over a long period. Such long-term follow-up reports are seen too infrequently in surgical literature.

FUNGUS DISEASES OF THE LUNGS

Review of Roentgenologic Manifestations

C. ALLEN GOOD, M.D., Rochester, Minnesota

FUNGUS diseases of the lungs usually are thought to be uncommon. This is probably true of severe forms, although recent evidence seems to indicate that the subclinical forms of certain of these diseases are extremely common. For example, it is estimated that from 80 to 90 per cent of all persons living for ten years in an area where coccidioidomycosis is endemic have had the disease.[19] It also is probable that in certain areas of the United States more persons have had the subclinical form of histoplasmosis than have had tuberculosis.[13] It is the purpose of this paper to review briefly what is known about roentgenologic manifestations of fungus diseases of the lungs.

At the outset it can be said that, with few exceptions, roentgenologic pictures are not sufficiently characteristic to allow a specific diagnosis to be made. All fungi which attack the lungs can and do produce changes which may be confused with tuberculosis, tumor, or pneumonia. Roentgenologic patterns of the fungus diseases also can be produced by some commoner pulmonary disease.

Although the roentgenologist seldom is able to make a specific diagnosis of fungus diseases, he should be sufficiently familiar with the pathologic changes which they produce to suggest the possibility in certain instances and to direct the diagnostic procedures which will enable the consulting physician to arrive at an exact diagnosis. Generally speaking, search for a fungus should be made in any case of chronic pulmonary disease in which a specific diagnosis has not been made. Most physicians can use the common skin tests but examination of cultures of sputum and bronchial secretions and of tissue removed by the surgeon should be left to the trained bacteriologist, mycologist, or pathologist.

Read before the Section on Radiology, Texas Medical Association, Annual Session, Galveston, May 1, 1951.
From the Section on Roentgenology, Mayo Clinic.

COCCIDIOIDOMYCOSIS

Coccidioidomycosis is endemic in certain parts of the United States, chiefly in the southwestern portion. In regions where it is found, as for example, in western Texas or in the central valley of California, physicians are aware of the prevalence of the disease and roentgenologists often consider it in their daily work. The primary infection is caused by the inhalation of the infective form (chlamydospore) of the fungus, Coccidioides immitis. Many patients either have no symptoms or have the disease in such a mild form that they do not consult a physician. The only evidence that the disease exists in this form is the fact that the skin of these persons becomes sensitive to the antigen, coccidioidin. It has been shown that after living for one year in a region where the disease is endemic, from 10 to 15 per cent of inhabitants give a positive reaction to the coccidioidin skin test, whereas after ten years of residence, from 80 to 90 per cent are reactors.

The fact that the disease may be asymptomatic does not mean that a pathologic process has not begun in the lungs. Months or years later when a roentgenogram of the thorax is made, a lesion may be found. If the person no longer lives in the region where the disease is endemic, other causes for the lesion will be considered first and the exact nature of the process may escape detection.

Those persons sufficiently ill to consult their physicians begin to complain of pain, cough, malaise, fever, and headache two to three weeks after exposure to the organism. Roentgenologic examination at this time usually discloses evidence of pneumonitis in one or both lungs.[7, 14] The picture is similar to that seen in cases of atypical pneumonia. Pneumonitis often begins in the hilar regions and is accompanied by enlarged hilar nodes (fig. 1a). It may extend into the periphery of the lungs and produce patches of consolidation. These patches may resolve completely

in from two to three weeks. In from 15 to 20 per cent of cases pneumonitis is accompanied by an allergic skin manifestation, such as erythema nodosum or erythema multiforme.

In from 10 to 15 per cent of clinical cases, instead of subsiding completely a lesion persists in the lungs. Such persistent lesions may remain for months or years and may be encountered long after the acute phase of the disease has subsided. These are the lesions which cause so much difficulty in diagnosis. The persistent lesion may be a nodule (fig. 1b), a cavity, or a fibrous scar. Roentgenologically, the nodules appear round or oval with regular, sharply circumscribed borders. They have the same density as a tumor and are easily confused with primary tumors of the lung, solitary metastatic nodules, or granulomas caused by tubercle bacillus and other fungi. The fibrous scars resemble those formed in tuberculosis.

Smith and his co-workers[18] have shown that cavities may develop in areas of pneumonitis during the acute phase of the disease (fig. 1c and d) or may occur as a result of necrosis of the central portion of a persistent granulomatous nodule after the discharge of necrotic material into the bronchial tree. These investigators studied 274 cavities known to have resulted from coccidioidal infection. Sixty per cent of the cavities of army personnel were incidental discoveries. On the other hand, 60 per cent of those of civilians were discovered when roentgenograms were made because the patient had experienced hemoptysis. The cavities were usually thin-walled and round or irregular in outline (fig. 2a). Evidence of reaction

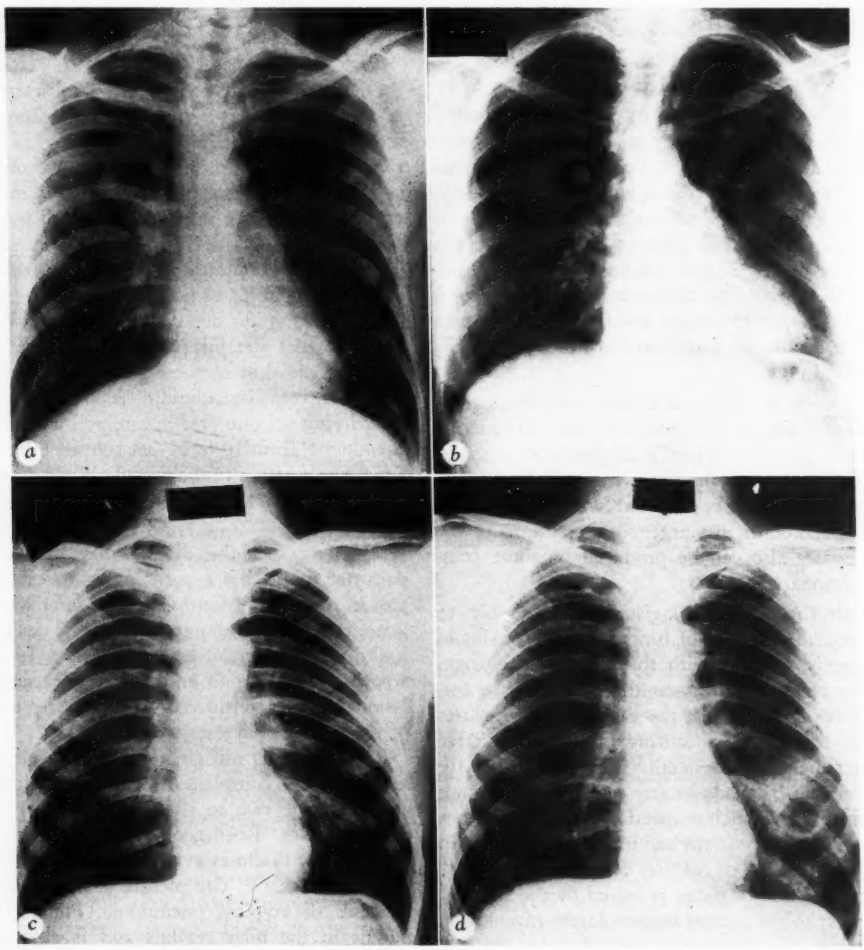

FIG. 1. Roentgenograms demonstrating coccidioidomycosis. *a*. Primary phase. Hilar adenopathy and small area of infiltration which shows beginning cavitation just above the anterior end of the right third rib. *b*. Persistent phase. Nodule 3 cm. in diameter hidden by the shadow of the heart and lying just above the left portion of the diaphragm. *c* and *d*. Primary and persistent phases with patchy pneumonitis in the left lung lateral to the heart shadow (*c*) and cavity which formed in the same region eight months later (*d*).

in the region surrounding the cavity was seldom found and frequently no other evidence of pulmonary disease was present. Sweigert and his co-workers, who found evidence of cavitation in 7.8 per cent of 77 cases of coccidioidomycosis, stated the opinion that the irregular, thin-walled cavities are the result of necrosis caused by pneumonitis, whereas the round, regular cavities, which usually have somewhat thicker walls, are the result of necrosis of a granulomatous nodule. This type of thin-walled cavity which appears without evidence of other pulmonary disease is considered by many to be pathognomonic of coccidioidomycosis.

Patients who are observed to have these cavities often experience hemoptysis. In 2.6 per cent of the patients studied by Smith and his co-workers another complication, spontaneous pneumothorax, developed. Some cavities persist unchanged for years. In other cases the size of the cavity fluctuates somewhat in the manner of a pneumatocele. Except for the complications of hemoptysis and spontaneous pneumothorax, the cavities rarely caused serious illness. Most authorities agree that although the organism can be recovered from the cavity, dissemination of the disease rarely results and infection of other persons never takes place. Because the presence of an asymptomatic cavity does not harm the patient, surgical intervention is resorted to only in cases of persistent hemoptysis, spontaneous pneumothorax, or other clinical symptoms. Most thoracic surgeons prefer excisional operations such as segmental resection or lobectomy to collapse therapy.

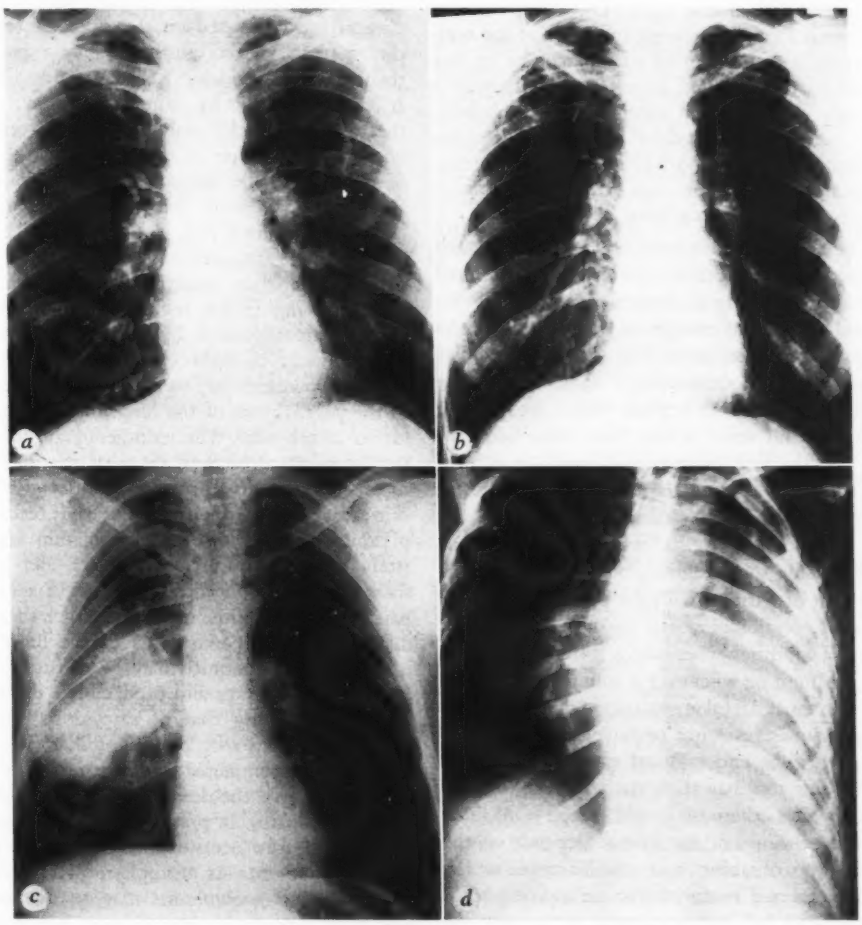

FIG. 2*a*. Roentgenogram of an irregular, elongated thin-walled cavity in the left lung. Coccidioides immitis was cultured from the patient's sputum. *b*. Large irregular cavity in the upper lobe of the right lung with associated fibrosis and infiltration. Histoplasma capsulatum was cultured from the wall of the cavity after lobectomy. *c*. Large pulmonary abscess in the right lung from which Actinomyces israeli was cultured at the time of surgical drainage. *d*. Actinomycosis with involvement of the thoracic wall. Note evidence of chronic osteomyelitis of the ribs and previous operative procedure on left ninth rib.

In approximately 0.5 per cent of the cases of clinical coccidioidomycosis the disease becomes disseminated. Dissemination usually takes place within a few weeks or months of the acute phase, although Norman and Lawler, quoting Forbus, stated that it can occur as late as ten years after the original infection. When dissemination occurs roentgenograms of the thorax may show marked enlargement of the hilar and mediastinal nodes. Miliary nodules sometimes appear in the lungs, and pleural effusion may develop. Other organs become involved and the roentgenologist may note evidence of destructive lesions in the skeleton. The appearance of these lesions is similar to those of tuberculosis and has been fully described by Benninghoven and Miller. The disseminated form of the disease is progressively fatal in approximately half of the cases. The disease occurs with increased frequency among members of the non-Caucasian races, being similar to tuberculosis in this respect. In its disseminated form, coccidioidomycosis is frequently confused with tuberculosis, lymphoblastoma, or metastatic malignant disease. Large areas of pneumonic consolidation which have a roentgenologic appearance similar to that of lobar pneumonia or bronchogenic carcinoma have been described.

It can be seen from this brief review that although the disease in its acute form usually is encountered by physicians practicing in areas where it is endemic, it is found just often enough in other parts of the country so that all roentgenologists should be familiar with its course and roentgenologic appearance. Since the disease is endemic in regions which are popular winter resorts and those which have been used extensively for training military personnel, it is possible for the acute stage of the disease to begin after the infected person has left the region. Of more importance to roentgenologists and other physicians practicing outside these regions, however, are the 10 to 15 per cent of patients with the persistent form of the disease. Coccidioidomycosis must be included in the list of possibilities whenever a solitary nodule is found in the lung or whenever a solitary thin-walled cavity is present. Careful questioning of the patient regarding previous residence or travel where the disease is known to be endemic and employment of the coccidioidin skin test may allow the physician to make a diagnosis which otherwise would escape him. Final proof of the existence of the disease depends on the isolation of the organism and usually requires the services of a trained bacteriologist or mycologist. It may be obtained by the pathologist if he sees the characteristic double-contoured, nonbudding, endosporulating spherules on microscopic examination of sections of tissue removed by the surgeon. Such proof can seldom be obtained when the disease is in the primary stage.

HISTOPLASMOSIS

For many years it was thought that the only form of pulmonary disease caused by the fungus Histoplasma capsulatum was an often fatal chronic disease characterized by widespread coarse, granular, parenchymal lesions. There is now good evidence to indicate that the disease also exists in a mild or subclinical form which attacks a large portion of the population in the lower Mississippi basin. The area of greatest incidence appears to be in those states bordering the Ohio and Mississippi Rivers, and the disease is more frequently encountered in those states west of the Allegheny Mountains, east of the Rockies, and south of the Great Lakes.[1]

Evidence that the disease exists in a mild or subclinical form is based on the study of sensitivity of the skin to various antigens among patients with roentgenologic evidence of calcification in the lungs. It has been shown by Palmer, Furcolow,[3] and others that a definite relationship exists between the presence of calcification in the lungs and the sensitivity of the skin to the antigen, histoplasmin. From their studies it would seem that calcification in the parenchyma of the lung and in the hilar and mediastinal nodes is more frequently associated with sensitivity to histoplasmin than sensitivity to tuberculin among persons living in the regions previously mentioned. Further investigations by these writers and others have brought to light cases of pneumonitis which resolved spontaneously to leave a small calcified focus in the parenchyma of the lung, together with calcification in the hilus. The roentgenologic features were similar in all respects to those of the primary lesion of tuberculosis. These patients did not give a positive skin reaction to tuberculin but did react to histoplasmin. In a few cases H. capsulatum was cultured from the sputum. Furcolow, Mantz, and Lewis have shown that histoplasmosis may begin with a single patch of pneumonitis, often not larger than 2 cm. in diameter, in the parenchyma of the lung. Less frequently the pneumonitis may be diffuse and patchy, involving both lungs and producing a roentgenologic picture resembling that of sarcoidosis. Occasionally the disease begins with multiple miliary lesions which are widely disseminated and soft and similar roentgenologically to the lesions of miliary tuberculosis. Hilar adenopathy is present frequently and mediastinal adenopathy occasionally. If present, symptoms rarely are severe. As histoplasmosis progresses the lesions due to pneumonitis may resolve completely, but more frequently they change into sharply circumscribed nodular foci. Calcium is deposited in the central portion of the nodule and subsequently the remaining portion of the nodule disappears. In the

miliary form the lesions may disappear entirely or may calcify, leaving widely scattered, calcified, miliary nodules throughout both lungs. It is highly probable that in many cases scars which roentgenologists have for years considered to be healed lesions of tuberculosis are the result of histoplasmosis. Peterson and Christie are of the opinion that massive hilar calcification or multiple peripheral or miliary calcification is observed more commonly among persons who react to histoplasmin than among those who react to tuberculin.

It is entirely possible that there is a persistent phase of histoplasmosis which is similar to the persistent phase of coccidioidomycosis or, more properly, to the chronic phase of tuberculosis. The nodular lesions have already been mentioned. They appear to calcify more frequently than do those of coccidioidomycosis. In a case previously reported by Hodgson, Weed, and Clagett a large, thin-walled cavity was present in the upper lobe of the right lung (fig. 2b). These investigators also have reported a similar case in which the cavity was situated in the lower lobe of the right lung. Both lesions were excised and H. capsulatum found microscopically and by culture. Figures regarding the incidence of this persistent form of the disease are not available.

It also is probable that the disseminated form of histoplasmosis corresponds to the disseminated form of coccidioidomycosis. Organs other than the lung are involved, particularly those of the gastrointestinal tract. In most of these cases the disease terminates fatally. The roentgenologic appearance in the disseminated disease has been described by Holt and that in 48 proved cases of all types has been reviewed by Hodgson, Weed, and Clagett. There are no characteristic roentgenologic findings. Certain patients showed areas of pulmonary consolidation resembling pneumonia; others were reported to show evidence of peribronchial infiltration. Some displayed miliary infiltration and still others definite nodules. Cavitation was rarely noted. Calcification was reported in about a fourth of the cases. In certain cases lesions of the pulmonary parenchyma were minimal, the predominating feature being enlarged hilar and mediastinal nodes.

As in all cases of fungus disease, proof of the existence of histoplasmosis depends on the isolation of the organism from the sputum, the blood stream, or tissue. Skin sensitivity to the antigen, histoplasmin, was present in only half of the cases reviewed by Hodgson, Weed, and Clagett. While not diagnostic, the test for skin sensitivity is an easy and useful procedure and when the results are positive, it probably indicates present or past infection. Further investigation will be necessary before the gaps in knowledge of this disease may be filled in.

ACTINOMYCOSIS AND NOCARDIOSIS

Actinomycosis is caused by several fungi with different cultural and serologic characteristics. According to Smith,[17] in 90 per cent of cases the disease is caused by the anaerobic Actinomyces israeli and in 10 per cent by the aerobic Nocardia asteroides. Actinomycosis and nocardiosis properly should be considered as separate entities. Antibacterial agents, such as penicillin and aureomycin, are effective in the treatment of actinomycosis whereas the sulfonamide drugs are effective in cases of nocardiosis. Distinction between the two diseases can be made only on determining the cultural characteristics of the organism.

A. israeli is a common inhabitant of the mouth, throat, and gastrointestinal tract of human beings. Kay expressed the opinion that when it attacks pulmonary tissue, it does so as a secondary invader. In a period of six months he isolated A. israeli from the sputum of 109 patients and from the bronchial specimens of 65 patients in a group of 240 patients who were being studied because of bronchopulmonary disease. In none of the cases in this series was the fungus found alone; in every case some other organism was present. In this same group of patients A. israeli was found in 50 per cent of those with bronchiectasis and in 50 per cent of those with chronic abscess or pulmonary suppuration. Figure 2c shows a large oval, partially circumscribed mass in the right lung of a patient. A. israeli was cultured from this lesion after thoracotomy to establish drainage was performed. At operation the lesion was thought to be a chronic abscess of the lung. It is conceivable that in this case the disease began as an abscess which the fungus invaded secondarily.

Many roentgenologic patterns have been described as showing evidence of pulmonary actinomycosis. It is probable that these descriptions refer both to actinomycosis and nocardiosis. According to Lindemann, pulmonary actinomycosis may produce pneumonic consolidation which may resolve without residue, form abscesses surrounded by fibrosis indistinguishable from cavitating tuberculosis, or extend across the pleural space to involve the thoracic wall. Oosthuizen and Fainsinger also described a pulmonary form with coarse or miliary nodules scattered in both lungs and a mediastinal form in which the only significant finding is hilar and mediastinal adenopathy. Generally it is considered that actinomycosis seldom involves lymph nodes.[20] The disease is most likely to be confused with chronic pulmonary tuberculosis but also may resemble a primary or secondary neoplasm.

More frequently than any other of the fungus diseases involving the lungs, actinomycosis crosses the

pleural space and invades the thoracic wall. Instances have been described in which the involvement of the thoracic wall was thought to be primary, the disease subsequently crossing the pleural space to involve the lungs. When the thoracic wall is involved, it is not uncommon for the ribs to increase in size and show evidence of chronic inflammation (fig. 2d). Such chronic osteomyelitis of the ribs should always lead to a search for A. israeli, as well as for the tubercle bacillus.

Final diagnosis depends on isolation of the organism and a study of its cultural and serologic characteristics. The diagnosis should be strongly suspected if "sulfur granules" can be demonstrated.

BLASTOMYCOSIS

In North America blastomycosis is caused by the fungus Blastomyces dermatitidis and is characterized by the formation of granulomatous lesions of the lungs, skin, and bones. In South America the fungus Blastomyces brasiliensis produces a different disease characterized mainly by lesions of the skin, mucous membranes, and lymph nodes. Involvement of the lungs may occur, but it does so late in the course of the disease after other organs are involved.

In North America blastomycosis may involve the skin of the patient primarily and may remain localized for years. In most cases the systemic form of the disease begins with involvement of the lungs. Smith[17] has stated that in 95 per cent of the cases studied at necropsy lesions were observed in the lungs.

The roentgenologic appearance of the pulmonary lesions varies. A study by Bonoff during a small epidemic of acute pulmonary blastomycosis on Okinawa showed that in 3 cases there were small, patchy areas of pneumonitis, in 1 case a round nodule, in another progressive consolidation, and in a sixth pleurisy with effusion. All cases showed hilar and mediastinal adenopathy. Feld and Cadden do not believe that there is anything characteristic about the roentgenologic appearance of the lesions. In this they agree with Reeves, who stated that the lesions may vary from dense pneumonic masses to miliary nodules. My colleagues and I have seen lobular consolidation (fig. 3a), a lesion in the upper lobe of the right lung resembling fibrous tuberculosis (fig. 3b), a diffusely disseminated infiltrative process (fig. 3c) which was progressive, and a mass granuloma (fig. 3d) in the upper lobe of the right lung which resembled a neoplasm. Smith[17] stated that "cavities are not characteristic and when present are usually small and have irregular, hazy outlines."

The expert services of a bacteriologist or mycologist are usually necessary to establish the diagnosis. Patients with skin lesions may be suspected to have the disease, for it is said that these skin lesions can be recognized clinically without difficulty. The systemic form of blastomycosis is said to be fatal in from 90 to 95 per cent of instances. In the 6 cases on Okinawa reported by Bonoff there were 2 deaths.

MONILIASIS

Whether Candida albicans, the only species of Monilia which has been demonstrated to be pathogenic, actually causes a primary pulmonary disease is controversial. Investigators at Duke University[17] are of the opinion that it may produce lesions in the lung as well as in the mouth, vagina, skin, and meninges. Reeves has described the roentgenologic appearance as varying from a nonspecific peribronchial thickening to a patchy pneumonitis resembling bronchopneumonia. There may be either lobar or lobular consolidation.

Robertson, on the other hand, doubts that primary moniliasis exists. He stated that the organism, which is a common inhabitant of the respiratory tract, is a secondary invader. It is frequently found in association with chronic pulmonary tuberculosis and bronchogenic carcinoma. At the Mayo Clinic we are inclined to agree with Robertson, for we have not encountered a case in which it could be proved without doubt that the disease in the lungs began as the result of an infection by C. albicans. Without question the organism will grow in the presence of other disease and it may produce additional symptoms which will clear after specific therapy.

According to Smith,[17] in order to establish the diagnosis of moniliasis not only must the organism be isolated but also the presence of aglutinins in the patient's serum must be demonstrated. He stated that every effort should be made to find a primary cause for the pulmonary lesion before accepting C. albicans as the etiologic agent. It is his opinion that if the patient responds to specific treatment and the lesions disappear from the lungs, it can be concluded that the fungus was the primary cause of the disease.

ASPERGILLOSIS

Pulmonary disease due to Aspergillus fumigatus is rare. Cooper has reported the case of a 45 year old man who had acute bronchopneumonia caused by A. fumigatus Fresenius which occurred during his convalescence from a gastric operation. Roentgenograms of the thorax were said to show evidence of "atelectasis and pneumonic consolidation at the base of the right lung." The disease was progressive and because of the roentgenologic picture tuberculosis was suspected. At necropsy it was observed that the patient's lungs were studded with miliary nodules from 1 to 2 mm. in diameter which were most prevalent in the upper lobe of the right lung. These nodules were shown microscopically to be tiny abscesses from

which the organism A. fumigatus Fresenius was isolated. Rabbits killed on the first or second day after intratracheal injection with this organism showed tiny miliary abscesses in the lungs. Those animals killed from six to twenty-six days after the injection showed changes in the lungs characterized by granulomatous reaction with necrosis.

Two cases of aspergillosis in which cavities were present in the lung have been reported, one by Gerstl, Weidman, and Newmann and the other by Stein and Sheinmel. In each instance the patient had experienced episodes of hemoptysis. In each instance lobectomy was performed; A. fumigatus was cultured from the cavity while the mycelial form of the fungus was seen microscopically.

Gerstl and his co-workers also described a case of aspergillosis in which the roentgenologic picture resembled that of tuberculosis with evidence of fibrosis in both upper lobes. At necropsy it was demonstrated that there was partial consolidation of the upper lobe of the left lung, atelectasis of the lower lobe of the right lung, and pleural effusion on the right side.

Figure 4a shows evidence of aspergillosis observed at the Mayo Clinic. Roentgenologic study showed patches of infiltration and fibrosis involving both upper lobes with some extension into the lower lobes.

Smith[17] stated that A. fumigatus is frequently noted in the sputum of patients with chronic bronchitis or asthma. He is of the opinion that in most instances the fungus is either an accidental contaminant or a secondary invader. He stated that tuberculosis, bronchiectasis, and carcinoma of the lung must be excluded before the possibility of primary pulmonary aspergillosis can be considered in those cases in which the organism is cultured from the sputum.

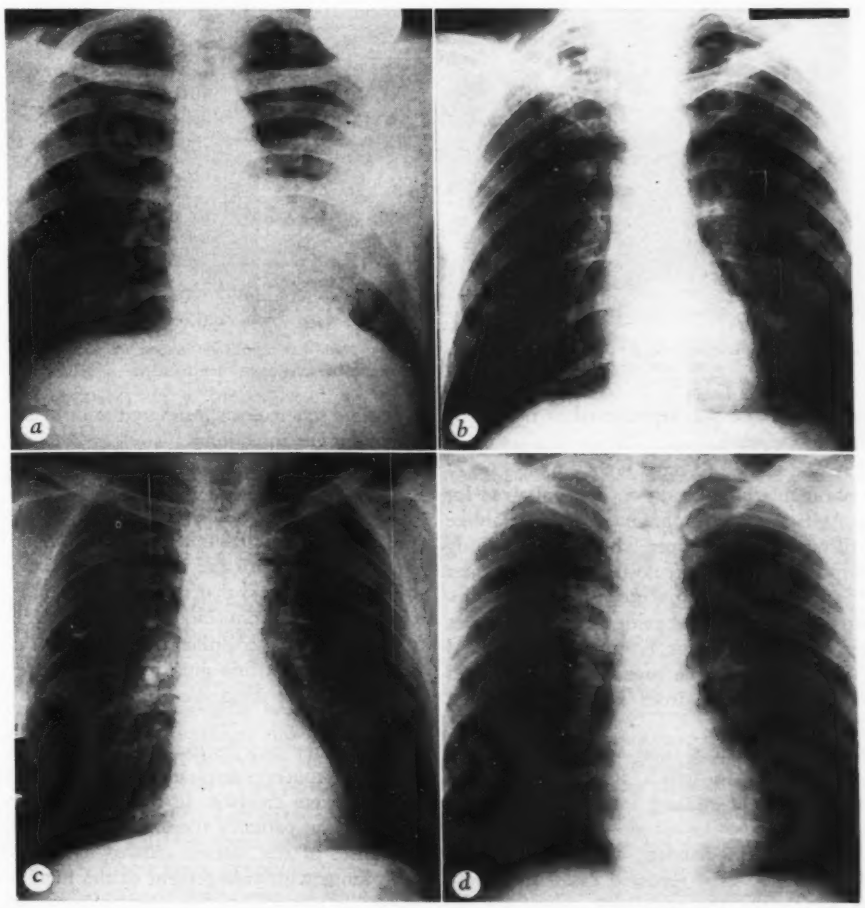

FIG. 3. Roentgenograms showing blastomycosis. *a*. Lobular consolidation. *b*. Infiltration in the upper lobe of the right lung resembling tuberculosis. *c*. Disseminated infiltrative process with hilar adenopathy of the right lung. *d*. Granuloma of the upper lobe of the right lung which was excised surgically.

CRYPTOCOCCOSIS (TORULOSIS)

Cryptococcosis is also known as "European blastomycosis." It is caused by infection with Cryptococcus neoformans (Torula histolytica). In most of the reported cases the patients have died because of involvement of the central nervous system. It is thought, however, that the portal of entry is the respiratory tract. Sheppe in 1924 was the first to report a case of pulmonary cryptococcosis. The patient, a man about 50 years of age, died because of a lesion in the lower lobe of the left lung. Clinically the diagnosis was "organizing bronchopneumonia." At necropsy the lower lobe of the left lung was observed to be irregularly consolidated. On closer study it was shown that this consolidation was made up of numerous irregular nodules from which the organism was grown in pure culture, and the disease was reproduced in rabbits by intratracheal inoculation.

Hardaway and Crawford have reported the case of a 33 year old man whose condition they followed for five years. At first roentgenograms showed a fanlike area of infiltration in the upper lobe of the left lung which was mistaken for tuberculosis. Three years later when the patient was having acute respiratory symptoms, roentgenograms showed evidence of progressive infiltrations in the right hilus, both upper lobes, and finally in the left hilus. The organism was cultured both from the sputum and from secretions aspirated from the bronchial tree.

These same investigators cited a case reported by Hirsch and Coleman in which the roentgenologic findings were those of miliary involvement of the lungs.

Smith,[17] Dormer, Friedlander, Wiles and Simson, and Froio and Bailey have reported cases of cryptococcosis in which the roentgenologic manifestation was a mass in the lung. In Smith's case the disease ultimately extended so that the roentgenographic appearance resembled lobar pneumonia. The patient died after extension of the infection to the central nervous system. The cases of 2 boys, 12 and 19 years of age, respectively, were reported by the other investigators. In each instance lobectomy was performed and in each instance pathologic examination of the mass showed it to be a firm, fibrous, rubbery granuloma. In 1 case the organism was grown in pure culture and the disease reproduced in a guinea pig. In Froio and Bailey's case the diagnosis was made on the basis of histopathology. Cultures were not obtained.

Figure 4b shows large, relatively thin-walled cavities in the apical portions of both lungs of a patient observed at the Mayo Clinic. The patient subsequently died at home and the presence of C. neoformans was confirmed by culture and inoculation into animals.

It can be seen that the roentgenologic manifestations of cryptococcosis vary greatly. The disease may resemble tuberculosis, primary tumor of the lung, and other fungus infections.

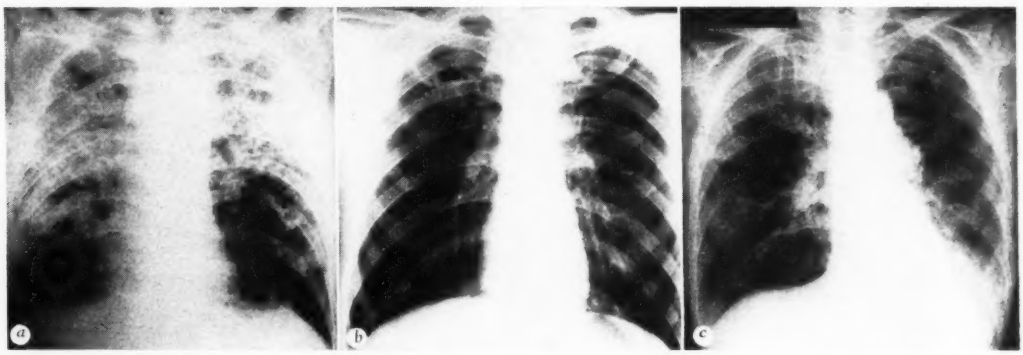

FIG. 4. Roentgenograms demonstrating *a.* aspergillosis, *b.* cryptococcosis (note the large cavities in both upper lobes), and *c.* geotrichosis with disseminated infiltration and hilar adenopathy.

GEOTRICHOSIS

Geotrichosis is caused by one or more species of the fungus, Geotrichum. The organism is frequently found in the mouth and in the intestinal or respiratory tracts. Smith[17] says that the roentgenologic manifestations may vary from smooth, dense patches of infiltration to diffuse peribronchial thickening, occasionally accompanied by fine mottling in the base or middle portion of the lung. Cavities may or may not be present.

Kunstadter and his associates[9, 10] have reported 3 cases of bronchopulmonary geotrichosis. Two of the patients were children. In one instance a roentgenogram of the patient's thorax taken three weeks after the onset of the disease showed a soft mottling in both lungs with enlargement of the hilar nodes. This condition persisted for six months. Eventually the pulmonary lesions cleared, leaving a rather hard nodular residue in both lungs. A second case was similar but

the lesions were less extensive than in the first. In the third case, that of a 22 year old Negro, roentgenologic examination showed diffuse mottling of both lungs with soft, infiltrated regions. This progressed for a while and subsequently cleared completely.

In figure 4c geotrichosis appeared to be localized to the apical portion of the right lung when the patient was first seen. Subsequent examinations showed dissemination into the base of the left lung with some evidence of hilar adenopathy. The patient's condition was followed for two months; meanwhile he was treated with antibiotic drugs and potassium iodide. At the end of two months roentgenologic evidence of disease had disappeared and the patient had no further respiratory symptoms.

COMMENT

It can be seen that the roentgenologic manifestations of the fungus diseases of the lungs vary greatly. In certain instances in the acute form of the disease, the picture resembles atypical pneumonia or primary tuberculosis. These lesions resolve, leaving fibrous scars or areas of calcification. All fungus diseases mentioned may show localized or disseminated shadows of fibrous infiltration, with or without cavitation, indistinguishable from tuberculosis. Cavitation has been reported in association with coccidioidomycosis, histoplasmosis, actinomycosis, blastomycosis, aspergillosis, and cryptococcosis. Mass granulomas resembling primary tumors of the lung have been shown to exist in all of these diseases, with the exception of aspergillosis. In many of the pulmonary mycoses hilar and mediastinal adenopathy is a predominant feature. Pleurisy with effusion is often reported. In almost all varieties the fungus may produce miliary infiltration in the lungs.

In certain instances the roentgenologic manifestations, although not specific, are highly suggestive of a particular fungus infection. The solitary thin-walled cavity without other evidence of pulmonary disease is most frequently seen in association with coccidioidomycosis. Involvement of the thoracic wall with accompanying osteomyelitis of the ribs is a feature most commonly observed in actinomycosis. The same picture can, of course, be produced by tuberculosis. Extensive calcification of the hilus and mediastinal nodes with numerous calcified nodules in the lungs is said to result most often from histoplasmosis.

The fungus diseases must be considered in the differential diagnosis of acute bacterial and viral pneumonias, pulmonary tuberculosis, lymphoblastoma, carcinoma of the lung, mass granuloma of the lung, Boeck's sarcoid, and metastatic malignant disease. The diagnosis in all cases depends on the isolation of the organism and the study of its cultural characteristics. In certain instances in which it is known that the fungus is a common inhabitant of the mouth or respiratory tract, it also is necessary to show that no other pulmonary disease has preceded the one attributable to the fungus and that the organism is pathogenic in animals. A history of exposure to a fungus, a positive skin reaction to a specific antigen, the inability to demonstrate any other specific etiologic agent, and sometimes the roentgenologic picture can lead to a search for a fungus and its eventual isolation.

A more extensive reference list is available from the author.

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Examination for Regular Corps Medical Officers

A competitive examination for appointment of medical officers to the regular corps of the United States Public Health Service will be given from February 5 to 7, 1952, at points throughout the United States. Applications must be received by January 2, 1952. Appointments will be made in the grades of assistant surgeon and senior assistant surgeon. Application forms and other information may be obtained from the Surgeon General, United States Public Health Service, Federal Security Agency, Washington 25, D. C., Attention: Division of Commissioned Officers.

PULMONARY ADENOMATOSIS AND ALVEOLAR CELL CARCINOMA

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PULMONARY adenomatosis and alveolar cell carcinoma, being two of the rarer primary lung tumors, have stimulated considerable interest among investigators since they were first described by Malasse in 1876. Only for the last few years has pulmonary alveolar cell carcinoma been distinguished from the benign pulmonary adenomatosis. The earlier writers made no distinction between benign adenomatosis and the obviously malignant alveolar cell carcinoma, making no comment as to their benignancy or malignancy. Even today many authors combine both under one heading, usually adenomatosis, making no discrimination in title, clinical course, or histologic appearance. Mistakenly other analysts have confused the epithelial lining of alveoli in chronic pulmonary disease with adenomatosis. Pulmonary adenomatosis once considered distinctly uncommon is being reported with increasing frequency, and alveolar cell carcinoma is still more commonly seen; of 101 cases of both thus far reported 54 were reported in the last year. These two kinds of lesions have become a problem of concern, particularly to those physicians whose chief interests are diseases of the chest.

The morbid anatomy of these conditions differs entirely from that seen in the more familiar bronchogenic carcinoma of the lung, and although the clinical course of each is similar in many respects to bronchogenic cancer, there are some notable exceptions. It is the purpose of this paper: (1) to review the gross and microscopic appearance of pulmonary adenomatosis and alveolar cell carcinoma; (2) to attempt to establish a direct relationship and to distinguish between the more benign adenomatosis and the truly malignant alveolar cell carcinoma; and (3) to discuss briefly the diagnosis, clinical course, prognosis, and therapy of these lesions.

The diagnostic criteria of adenomatosis are as follows: (1) alveolar cell proliferation characterized by the appearance of tall columnar mucus-producing cells, (2) absence of intrinsic tumor of the bronchial tree, and (3) absence of primary adenocarcinoma elsewhere in the body that could account for metastasis to the lung. Alveolar cell carcinoma histologically is malignant and metastasizes in a high proportion of instances. The term adenomatosis therefore is reserved for those histologically benign lesions showing no metastases.

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The widely divergent names attached to adenomatosis and alveolar cell carcinoma make an accurate review of the literature arduous and uncertain and also indicate the varied opinions as to their origins and natures. Among the many titles used are alveolar cell tumor,[9, 15, 16] terminal bronchiolar carcinoma,[12, 18, 22] alveolar cell carcinoma,[13] cancerous pulmonary adenomatosis,[6] primary multiple alveolar cell tumor,[15] papillary gelatinous adenocarcinoma, alveolar cell cancer,[22] adenoma-like tumor,[17] multicentric alveolar cell carcinoma, carcinomatoides alveogenica multicentrica,[4] papillary adenocarcinoma, malignant adenomatosis, carcinosis, and diffuse epithelial hyperplasia.[1]

Probably the most controversial issue regarding these tumors is the site of their origin. The final answer to this question is far from solved, as the normal histology of the alveoli is debatable. One group of authors (Bell,[1] Ham, Ikeda,[13] Sims, Macklin, and Wood[23]) believed the epithelium in the fetus undergoes desquamation before the sixth month but that an occasional cell is left attached to the septal wall, proliferating in times of stress or strain on the alveolar septums. They were of the opinion that these "septal cells," epithelial in nature, give rise to alveolar cell tumors. On the other hand, there were those (Fried,[7] Herbut,[12] Loosli, and Barnard) who believe the occasional septal cells seen in the normal nonfetal alveoli are mesenchymal in origin and therefore any tumor arising from them cannot be carcinomatous. Neubuerger[9, 15, 16] doubted that the exact cellular origin is important, as any one germ layer can and does under certain conditions form tissues which are normally specific for another. Therefore, it is conceivable that alveolar cell tumor histologically resembles epithelium, but actually arises from cells derived from mesenchyma.

Herbut,[12] Smith,[18] Moyer, Simon, Sweany,[22] Bliss,[2] and Casilli[4] could not accept the alveolar origin of these tumors but strongly believed them to be terminal bronchiolar in genesis. They based their opinion on several premises, some of which are open to question. These are:

1. There is no epithelial lining of the alveoli (many believe otherwise).

2. These tumors can be seen extending from bronchioles to alveoli (they could possibly extend from alveoli to bronchioles).

3. Histologically the cells resemble the lining cells of the normal bronchiole (alveolar cell carcinoma is quite dissimilar to normal bronchiolar epithelium).

Grossly these tumors are classified into the diffuse (pneumonic) type and the multiple nodular type. The former was first described by Musser in 1903 and is the rarer. It is recognized by its tendency to involve completely a lobe or a lung and resembles grossly the stage of gray hepatization of lobar pneumonia; in fact, Neubuerger[16] comments that these lesions are often diagnosed as pneumonic at autopsy. The multiple nodular type is much more frequent in occurrence and presents nodules of gray-white tumor scattered irregularly throughout the involved lobes. This type may include only one lobe, a complete lung, or both lungs. The nodules frequently coalesce to form large areas of tumor tissue and occasionally may become so extensive as to resemble the diffuse form.

DISCUSSION

The clinical features of pulmonary adenomatosis and alveolar cell carcinoma are those characteristic of some other diffuse pulmonary lesion and are not specific. The symptoms usually noted are weakness, malaise, vague chest pains, and a rather severe cough. These patients rarely show hemoptysis but in benign pulmonary adenomatosis, thick mucoid sputum is abundant. In alveolar cell carcinoma this latter feature is less prominent and the patients tend to show only a nonproductive cough with vague chest pains and shortness of breath. The two diseases are of long duration, slowly progressing in extent with gradually increasing symptoms.

The physical findings in these conditions vary with the amount of pneumonic tissue involved. In the earlier stages in which only a portion of one lung is involved, there may be no physical signs or there may be small areas of dullness, diminished breath sounds, and rales. As the disease progresses the symptoms become more pronounced, and in the terminal stages frequently one sees diffuse areas of consolidation exemplified by dullness, loss of breath sounds, and distant rales.

The roentgenologic findings are likewise nonspecific but in several reported cases pulmonary adenomatosis has been suspected. The typical roentgenographic findings in pulmonary adenomatosis and alveolar cell carcinoma vary with the extent of the disease. In diffuse pulmonary adenomatosis completely consolidated lobes resembling those in lobar pneumonia are seen and a diagnosis of lobar pneumonia frequently is made. However, since no change is noted when antibiotic therapy is given, lobar pneumonia can be excluded. In the multiple nodular type of pulmonary adenomatosis and in alveolar cell carcinoma (fig. 1) the most frequent observation is multiple focal densities varying in size scattered throughout the involved lung parenchyma. These densities are most frequently diagnosed as tuberculosis or mycotic infections. Table 1 briefly reviews the clinical characteristics of 5 cases which have been collected.

The only laboratory procedure of diagnostic significance is the examination of the sputum, when present, for malignant cells. This has been used with some success by Smith, Knudtson, Watson[18] in their series of 20 cases; 5 of the cases were diagnosed by this method. This procedure was not helpful in my cases.

MORBID ANATOMY

The gross appearance of pulmonary adenomatosis varies with the type, diffuse or multiple nodular. Usually adenomatosis cannot be differentiated grossly from severe inflammatory processes or alveolar cell carcinoma. The absence of gross metastasis and the presence of large quantities of thick mucus on the cut surface and in the bronchi make one suspicious of adenomatosis.

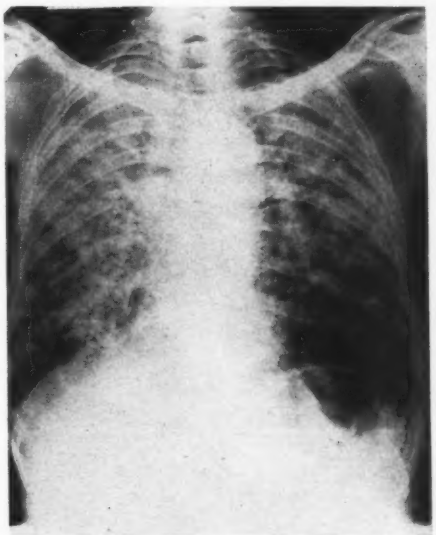

FIG. 1. Chest roentgenogram of a patient with diffuse bilateral alveolar cell carcinoma, taken in the terminal stage.

Microscopically, adenomatosis shows a striking pattern (fig. 2a). The alveolar septums are intact but lining them is a single layer of tall mucus-producing columnar epithelial cells; these cells give the appearance of a picket fence. The individual cells are regular in size and shape and have round or oval inferiorly placed, moderately dark staining nuclei and large mucus-filled vacuoles in the cytoplasm. Mitotic figures are not seen. These cells show an irregular border extending into the lumen of the alveoli but no true cilia are recognized. Frequently small groups of these cells are seen lying free in the alveolar lumen and resemble markedly pulmonary macrophages. There is

no invasion of the pulmonary parenchyma but all the alveoli usually are lined by this benign epithelium. Examination of the regional lymph nodes shows no metastases. It is of interest and importance that careful examination of the smaller bronchi and bronchioles in the involved tumor areas presents no evidence of the proliferative growth. Adenomatosis resembles to some extent the small focal areas of alveolar cell hyperplasia frequently seen adjacent to areas of severe pneumonic inflammatory processes.

On the other hand, alveolar cell carcinoma (fig. 2b, c; and d) shows a more pleomorphic pattern but one which is likewise characteristic. In alveolar cell carcinoma the alveoli are again lined by epithelial appearing cells but they may be in multiple layers and are less regular in arrangement. The cells vary in size and shape, have moderately large round or oval hyperchromatic nuclei which are usually centrally placed, and have cytoplasm which contains small or no mucus-filled vacuoles. Tumor giant cells frequently are seen scattered throughout the involved areas. The neoplastic cells are seen constantly lying loose in the lumens of the involved alveoli. Here again, these cells are similar to pulmonary macrophages. Mitotic figures though not prominent occasionally may be observed. The alveolar septums are usually intact with

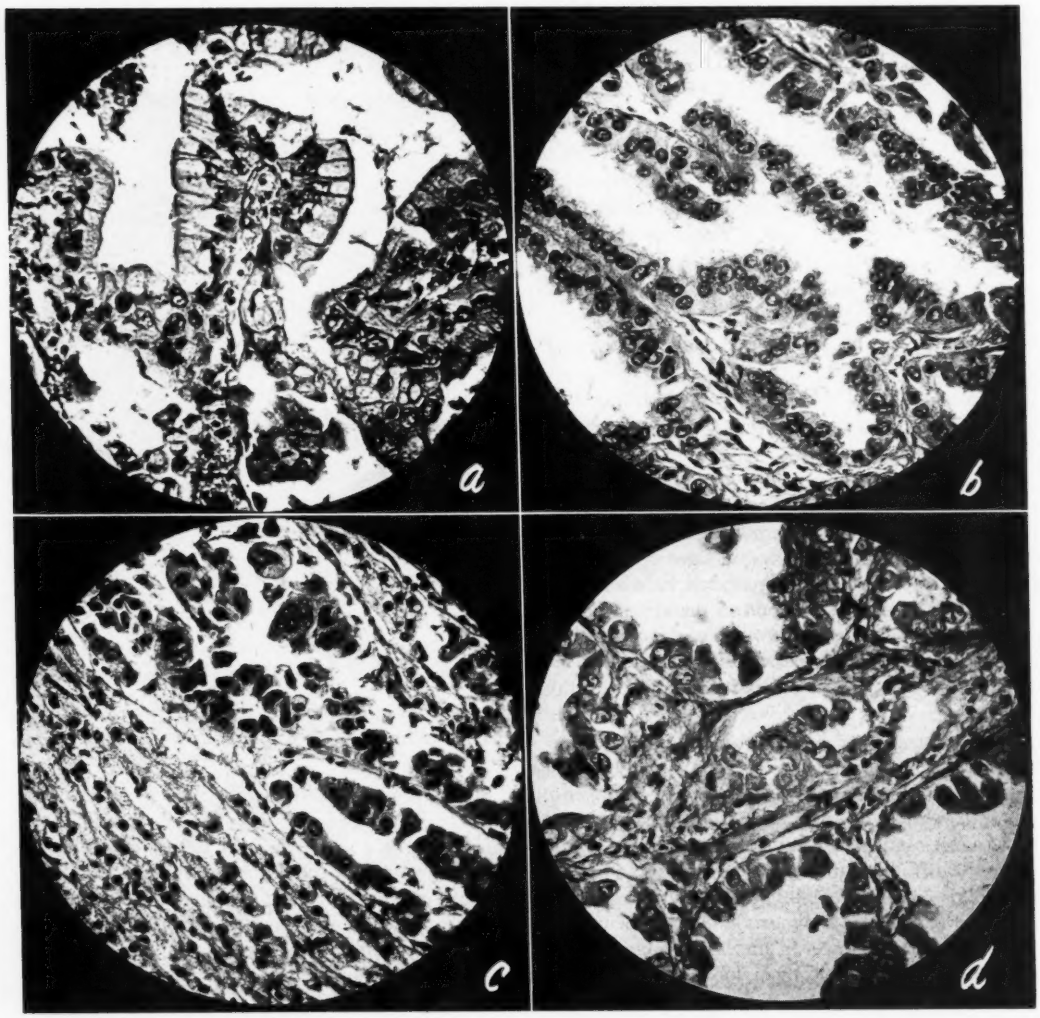

FIG. 2a. Photomicrograph (x 265) of pulmonary adenomatosis, showing the large mucus-filled vacuoles, inferior nuclei, and single layer of neoplastic epithelial-like cells.

b. Photomicrograph (x 130) of alveolar cell carcinoma, showing smaller cell in multiple layers and no mucus-filled vacuoles.

c. Photomicrograph (x 265) of alveolar cell carcinoma, showing a definite malignant pattern with tumor giant cells and loss of arrangement.

d. Photomicrograph of alveolar cell carcinoma, showing the intact alveolar septums with tumor cells on their surface.

the capillary lumen being open and containing blood. In the more anaplastic areas of these tumors may be seen some destruction and invasion of the alveolar septums. The bronchioles and smaller bronchi, like in adenomatosis, are not involved by this neoplastic process. In more than 50 per cent of the cases reported metastases were seen in the regional lymph nodes and in a few distant visceral metastases were present. Of the 5 cases of this type recently reviewed by me, 3 have metastasized to regional nodes and 1 to distant organs.

Because of the similarity of the microscopic picture in these two diseases, it is easy to postulate that pulmonary adenomatosis may be transformed into the definitely malignant alveolar cell carcinoma. Even though pulmonary adenomatosis appears histologically benign, it may kill by suffocation when extensive enough so that no oxygen is transmitted across the epithelial barrier. If the patient survives a sufficient time or if the disease remains localized, it is possible that the histologic picture may undergo a malignant transformation and the typical alveolar cell carcinoma is produced.

The therapy of these conditions is still speculative. One group of researchers is of the opinion that because of the multicentric origin, surgical eradication is futile. This view is not held by Smith, Knudtson, and Watson,[18] as they have reported a few cases in which five-year survival has been accomplished by pneumonectomy or even excision of the nodule. These procedures can be applied only to those lesions which are judged at surgery to be localized to a resectable portion of the lung. One of my patients is still alive one year after pneumonectomy. No other therapeutic procedure has offered any hope of survival to these persons as radiotherapy is of no avail. Therefore, it appears that if these lesions are diagnosed, early surgery may effect a cure in a small percentage of patients.

A naturally occurring contagious disease in sheep (jagziekte) viral in origin is practically identical histologically to pulmonary adenomatosis. Much work attempting to prove a similar viral origin of pulmonary adenomatosis in human beings has been done, but to date no etiologic agent has been isolated.

SUMMARY AND CONCLUSION

Pulmonary adenomatosis and alveolar cell carcinoma are discussed as to clinical course, diagnosis, and morbid anatomy. An attempt is made to correlate the two diseases in pathogenesis, and some comments as to the possible etiology and therapy are made.

TABLE 1.—*Summary of Cases.*

Case	Clinical Features	Laboratory Examination	Pathologic Examination	Roentgen Diagnosis	Metastasis
1 Male Negro Aged 67 yr. Duration 1 yr.	Severe cough—minimal mucoid sputum Weakness Loss of weight Dyspnea Rales Rhonchi	Malignant cells in sputum	Virtually all air spaces of both lungs replaced by coalescent areas of consolidation which were granular and gray-pink	Mycotic infection	Hilar lymph nodes
2 Female White Aged 60 yr. Duration 6 wk.	Cough—moderate mucoid sputum Loss of weight Nausea Anorexia Dyspnea	No malignant cells in sputum	About 40% of parenchyma of upper two lobes of right lung, removed surgically, displaced by multiple poorly circumscribed nodules of firm gray-white tissue	Lung abscess and bronchiectasis	None
3* Female White Aged 60 yr. Duration 3 yr.	Nonproductive cough Weakness Loss of weight Anorexia Fever Dyspnea		Large proportion of air-bearing tissue throughout both lungs replaced by poorly circumscribed areas of firm gray-white tissue; right apex completely replaced	Diffuse lung tumor	Hilar lymph nodes and parietal pericardium
4 Male White Aged 63 yr. Duration 2 mo.	Nonproductive cough Weakness Dizziness Blurring of vision Dyspnea Rales Dullness, friction rub over base of right lung		Firm, gray-white 4 cm. ovoid mass in lateral aspect of upper lobe of right lung; multiple, small, poorly circumscribed nodules scattered throughout remainder of both lungs	Metastatic carcinoma or fungus infection	Hilar lymph nodes, aortic lymph nodes, liver and adrenal gland
5* Male White Aged 44 yr. Duration 2 yr.	Cough—much jelly-like sputum Weakness Fever Pain in chest Impaired resonance Moist rales Increased tactile fremitus	Leukocytosis	Both lungs consolidated posteriorly, other portions involved by coalescent firm areas presenting gelatinous surface; multiple small cavities; small areas of necrosis; tiny nodules of gray-white gelatinous tissue in small portions of air-containing lung	None	None

*These cases were contributed by Baylor University College of Medicine.

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ABSTRACT OF DISCUSSION

DR. A. O. SEVERANCE, San Antonio: Dr. Abbott has focused attention on an interesting and controversial lung tumor. It has been my experience, and I am sure it must be of others, to run across cases of this type in the study of routine microscopic slides of autopsies. In the past year, 2 such cases have come to light in our hospital.

The main controversy in these cases has been concerning the histogenesis. Stewart expressed the view at the Houston seminar a few days ago that these tumors are bronchiolar in origin. This opinion has been strongly supported by Herbut and others, as pointed out by Dr. Abbott. Dr. Abbott also has given his reasons for holding to the opposite view. I shall leave the question open.

I have been permitted access to the slides used in this study and agree that they show the typical picture of this disease. In the brief time I devoted to studying these slides, I saw great similarity in all 5 cases and would be content to classify them under the same term—be that pulmonary adenomatosis or alveolar cell carcinoma. Perhaps as Dr. Abbott hints, the first type may be of shorter duration, and with sufficient time metastatic spread becomes evident.

DR. JAMES N. WHITE, San Angelo: I was particularly interested in this excellent paper by Dr. Abbott on pulmonary adenomatosis as I have had occasion to study completely a similar case of this rare condition. A white man aged 32 was seen in March, 1946, with an acute fulminating pneumonitis in the lower lobe of the right lung. The history and roentgenographic evidence revealed this lesion had been present in 1939 and was originally diagnosed as an unresolved bronchopneumonia. Serial roentgenograms in March, 1946, revealed this same lesion in the lower lobe of the right lung; bronchoscopic examination was negative, as were repeated sputum examinations for acid-fast bacilli and fungi.

Exploratory thorocotomy was performed in April, revealing a tumor of the middle lobe of the right lung which was removed and diagnosed on microscopic examination as an alveolar cell carcinoma. The patient improved after lobectomy. However, after about six months he gradually went downhill. The patient lost weight; lesions appeared in the lower lobes of both lungs; and the patient raised from 800 to 1,200 cc. of blood-tinged mucoid sputum daily. He finally died suddenly January 16, 1950. The diagnosis was confirmed at autopsy by Dr. Lloyd R. Hershberger, San Angelo.

A complete work-up of this case and a review of the literature is being prepared for a journal on chest diseases.

IMPROVEMENT OF WORLD HEALTH CONDITIONS

Extensive application of the recent advances in medicine and public health has strikingly improved health conditions throughout the world, according to a report of Metropolitan Life Insurance Company statisticians. A comparison of death rates before and after World War II shows that in each of nineteen countries in both hemispheres the rate has declined by more than 8 per cent and in nine of these countries, it has dropped 20 per cent or more.

Declines in death rate were noted in the poorer sections of the globe—in Japan the death rate fell by 30 per cent, largely as result of public health measures instituted by the American army of occupation, and in India the rate declined by one-fifth. England and Wales and the United States experienced declines of 27 and 23 per cent respectively, but these records are still higher than the rate for Norway, the country which has the lowest death date in the world.

BED REST FOR COMPLICATIONS OF COMMON COLD

Dr. Noah D. Fabricant, Chicago ear, nose, and throat specialist, advises in the November issue of *Today's Health* published by the American Medical Association, that serious complications of the common cold can be prevented by going to bed early in the course of the cold to allow recuperation.

The most infectious of communicable diseases, the cold is often ignored, Dr. Fabricant states, because many persons believe that nothing can be done for a cold. Although colds rarely are a direct cause of death, they incite serious infections and result in many complications.

"Our modern methods of living probably are largely responsible for the increased incidence of colds," the article states. "We are crowded together in offices and packed into subway cars and elevators where we cough and sneeze into one another's faces."

HOMOLOGOUS SERUM HEPATITIS AFTER TRANSFUSIONS OF BLOOD AND ULTRAVIOLET-IRRADIATED PLASMA

Clinical Observations

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State Sanatorium, Arkansas

THE voluminous literature in recent years describing the occurrence of jaundice after the parenteral use of human blood products attests to the importance of what has been designated as homologous serum hepatitis. This entity has been ascribed to the administration of vaccines made with human serum and the injection of various medicaments with inadequately sterilized syringes contaminated with blood of patients harboring the virus, as well as to the injection of pooled human plasma and the transfusion of whole blood from infected donors.

It is the purpose of this communication to comment on the incidence of homologous serum hepatitis at Scott and White Memorial Hospital after the transfusion of whole blood and of commercial plasma subjected to ultraviolet irradiation. This report is based upon a follow-up study of patients given transfusions during an eighteen month period from January 1, 1949, to July 1, 1950.

Various phases of the disease have been adequately reviewed many times, notably by Neefe, Miller, and Chornock[10] and Neefe, Gellis, and Stokes.[9] In 1942, 28,585 cases of hepatitis with jaundice developed in United States Army personnel after the use of yellow fever vaccine prepared with human serum. Spurling, Shone, and Vaughan[14] performed extensive follow-up studies on 2,040 patients transfused with pooled serum and plasma, 1,284 patients transfused with whole blood only, and 1,284 control patients who were not transfused but who were in the hospital at the same time as those receiving whole blood. The incidence of jaundice in patients who received pooled plasma or serum was 7.3 per cent. No patient receiving whole blood developed homologous serum hepatitis. There was no jaundice among the control patients within a five month period.

Brightman and Korns[3] reported a six months' follow-up study of 649 patients who received transfusions of reconstituted dried human plasma and observed homologous serum jaundice in 18 patients, or 4.4 per cent. Nine of these 18 patients received whole blood in addition to the plasma. However, the authors doubted that whole blood was responsible for the disease. That jaundice does occur more frequently after the administration of pooled plasma has been fairly well established. Lehane, Kwantes, and their associates[5] have shown that plasma derived from pools containing not more than 10 donors was much less likely to contain the virus than plasma derived from pools of more than 10 donors: 11.9 per cent of their cases followed plasma infusions from a large pool, whereas only 1.3 per cent followed plasma infusions from a small pool.

Further efforts to reduce the incidence of the disease led to a trial of ultraviolet irradiation of plasma to destroy the virus. This procedure was first applied to human serum by Oliphant[11] to inactivate the virus of homologous serum hepatitis, but the results were not confirmed and the effect of the process on the serum proteins was questioned. Wolf and his associates[16] demonstrated that irradiated human plasma could be injected into rabbits and human beings without apparent ill effect and also described electrophoretic studies on the irradiated human plasma which showed no variation from that of the nonirradiated control samples of plasma. Blanchard and others,[2] using samples of known icterogenic serum and plasma in human volunteers, demonstrated that hepatitis occurred in 7 of 15 subjects who had been given nonirradiated plasma or serum, whereas no cases of hepatitis occurred in the subjects given the same serum and plasma which had been subjected to ultraviolet irradiation.

On July 6, 1948, commercially prepared human plasma subjected to ultraviolet irradiation§ was substituted for the nonirradiated product previously used at the Scott and White Memorial Hospital. Prior to that time there had been a steady decline in the use of plasma as a substitute for blood in the treatment of various medical and surgical conditions at this institution, as table 1 demonstrates. It was hoped that irradiated plasma would eliminate completely cases of jaundice which could be ascribed to hepatitis after the administration of plasma.

It was with some dismay that on December 13, 1948, a diagnosis of homologous serum hepatitis was

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§Prepared by Hyland Laboratories, Los Angeles.

made on a patient who had received 1 unit of this plasma at this hospital on September 14, 1948.

A 44 year old housewife entered the Scott and White Clinic on September 8, and diagnoses of chronic urethritis, cystocele, postoperative ventral hernia, hemorrhoids, and displaced intervertebral disk were made. On September 14 she underwent an anterior colporrhaphy, hemorrhoidectomy, and repair of the ventral hernia. The gallbladder was palpated and noted to be normal.

As part of postoperative treatment to prevent shock, 1 unit (250 cc.) of irradiated plasma was given intravenously. No whole blood was administered. She received intramuscular injections of procaine penicillin in oil and several intravenous infusions of physiologic salt and glucose solutions, also injections of morphine to control pain.

All solutions given intravenously were prepared by a well known commercial laboratory and administered through sterile disposable tubing and autoclaved needles. All syringes used for the penicillin injections had been autoclaved. The multiple dose-single syringe method is not used at Scott and White Memorial Hospital. The syringes and needles used for the injections of morphine, however, were kept in alcohol at the nurses' desk. The hypodermics were prepared by boiling a small amount of water over an alcohol flame for a few minutes and aspirating the dissolved morphine tablet into the syringe. This is a common, though antiquated, hospital practice.

TABLE 1.—*Number of Blood and Plasma Transfusions Given at Scott and White Memorial Hospital—1942 to July 1, 1950.*

	1942	1943	1944	1945	1946	1947	1948	Jan. 1, 1949-July 1, 1950
Blood	518	471	484	548	902	1,285	1,575	2,939
Plasma	44	29	110	160	247	352	104	77

The patient made an uneventful recovery and was dismissed from the hospital October 1. On about November 1, approximately fifty-four days after the administration of the irradiated plasma, she reported to her local physician* because of anorexia, epigastric discomfort, putty-like stools, and dark urine. By November 19, she had developed marked jaundice with associated pruritus, weakness, and nervousness. Her physician observed the liver to be enlarged and tender and she had an icterus index of 28 units. She began to improve, but her jaundice persisted and she was transferred to Scott and White Memorial Hospital on December 13, 1948. She was observed to be deeply jaundiced, and the edge of the liver was palpable 2 fingerbreadths below the right costal margin. Laboratory examinations revealed evidence of hepatocellular disease.

By December 23, the patient was markedly improved. She was dismissed from the hospital December 27 and on February 12, 1949, she reported complete recovery.

Because it was not possible to eliminate the chance that the inadequately sterilized syringes used for the hypodermics of morphine were the carriers of icterogenic material, this case was not reported. It was decided to make follow-up studies on all patients who received blood, irradiated plasma, or both at Scott and White Memorial Hospital.

**Dr. F. E. Seale, Tahoka, kindly supplied information concerning this patient. He stated that as far as he could determine, there were no other cases of infectious hepatitis in his practice in the interval between her operation and the development of jaundice.*

MATERIALS AND METHODS

The Scott and White Memorial Hospital receives most of its patients from the smaller towns in Texas, Arkansas, Oklahoma, New Mexico, Louisiana, and northern Mexico. Because of this fact, there is little likelihood that epidemics of infectious hepatitis would be evident in the patients treated at this hospital. No major epidemic of jaundice was present in Temple, nor at any time was there an unusual number of patients with jaundice in the hospital. During the eighteen month period of this survey, a total of 59 patients with infectious hepatitis were hospitalized. These constituted but 1.07 per cent of a total of 3,289 admissions to the medical service.

Patients who received blood or irradiated plasma or both substances while in the hospital from January 1, 1949, to July 1, 1950, were sent questionnaires requesting a "yes" or "no" answer as to their having had an illness characterized by jaundice within two to six months after treatment at the hospital. It was recognized that possible cases of hepatitis without jaundice would be eliminated from this study but no alternative was possible. Patients who replied "yes" and described a characteristic illness and who were not subsequently observed at the hospital or whose local physicians could not be reached to confirm the diagnosis were labeled as "possible hepatitis." Patients who gave equivocal answers were eliminated and those who answered "yes" but whose jaundice occurred less than two months after the administration of the blood or irradiated plasma also were eliminated, as epidemic infectious hepatitis could not be ruled out.

Three changes in materials and technique were made during the period of study:

1. In February, 1949, a blood bank was started at the hospital. Prior to that time, blood donors were available from local townspeople and hospital personnel. With the institution of the blood bank, a special effort was made to eliminate insofar as possible any donor who gave a history of hepatitis.

2. Beginning July 30, 1949, syringes and needles used for hypodermics were subjected to boiling for thirty minutes by the clock and placed in an autoclaved metal container, from which they were removed as needed for individual patients. Thus, there was no chance that an inadequately sterilized syringe or needle might be picked from the sterilizer and used.

3. On October 10, 1949, all of the irradiated plasma of the original brand was removed from the hospital and a second brand† was substituted.

Because it was thought that some idea concerning the importance of this disease in our hospital might be derived, an attempt was made to discover pre-

†Lyovac Irradiated Human Plasma, prepared by Sharp and Dohme, Glenolden, Pa.

viously undiagnosed cases of homologous serum hepatitis which, in the light of more recent knowledge of the disease, might have been misdiagnosed. Commercially prepared human plasma came into use in 1942 and the nonirradiated product was used through July 6, 1948, when the irradiated preparation was substituted. Records of patients with a diagnosis involving jaundice who were treated at Scott and White Memorial Hospital from 1942 through 1948 were reviewed. This meant that such diagnoses as cholecystitis, cholelithiasis, carcinoma of the gallbladder, hepatitis, and catarrhal jaundice were studied. If it could be established that the patient had received blood or plasma or both, and within an appropriate incubation period returned with symptoms, signs, and laboratory examinations compatible with homologous serum hepatitis, the diagnosis was considered to be the latter disease. In addition, cases of hepatitis which followed the use of blood alone, plasma alone, and both blood and plasma were noted.

RESULTS

A total of 2,939 transfusions of whole citrated blood and 77 units of irradiated plasma were administered during the eighteen month period of study to 1,311 patients, some of whom received as many as 14 transfusions. In only seven instances was the plasma given without whole blood. Sixteen patients receiving blood or plasma died of the condition requiring their use before six months had passed and are therefore not included in this report. There were 843 answers from the 1,311 questionnaires sent out, making a total follow-up percentage of 64 per cent. Thirteen cases of homologous serum hepatitis were diagnosed; of these 3 were listed as "possible cases," since the patients were not actually observed during their illness and their local physicians could not be reached. Table 2 lists data on these 13 cases. There were no known deaths from homologous serum hepatitis in this series. The over-all percentage of hepatitis was 1.54 per cent of the cases followed.

It will be noted that the cases of hepatitis which followed the use of plasma alone occurred with the first brand of plasma. The limited number of cases involved make this fact insignificant. There was, however, a marked reduction in the incidence of homologous serum hepatitis after the institution of adequate methods of sterilizing hypodermic syringes and needles used by the nurses for routine medications; only 3 cases were reported after July 30, 1942, 2 of these being "possible" cases, in spite of the fact that the majority of the transfusions were administered after this date. In addition, despite the fact that only 77 units of plasma were given as opposed to 2,939 blood transfusions, 10 of the 13 cases of homologous serum hepatitis reported followed the use of transfusions involving plasma alone or blood and plasma.

Although we do not consider that the incidence of homologous serum hepatitis is truly reflected in the review of the records of jaundiced patients in the hospital prior to January 1, 1949, it is of interest to note that most cases of hepatitis followed the use of plasma or plasma and blood, rather than blood alone. This observation is consistent with the results of the eighteen month period of follow-up (table 3).

TABLE 2.—*Clinical Data on 13 Cases of Homologous Serum Hepatitis Diagnosed at Scott and White Memorial Hospital—January 1, 1949, to July 1, 1950.*

Case	Age/ Sex	Diagnosis or Operation	Type of Transfusion	Incubation Period (Days)	Remarks
1	48/F	Vaginal hysterectomy, 1-29-49	Plasma* and blood†	63	Recovered
2	63/M	Small bowel resection, 2-1-49	Plasma and blood	74	Recovered
3	37/F	Spontaneous abortion, hemorrhage, 3-13-49	Plasma and blood	66	Recovered
4	62/F	Bilateral fracture of femur, 3-29-49	Plasma and blood	67	Recovered
5	53/M	Myocardial infarction, 4-4-49	Plasma	60	Recovered
6	69/F	Open reduction, fractured femur, 4-29-49	Blood	64	Recovered
7	55/M	Airplane propeller injuries, 5-24-49	Plasma and blood	83	Recovered
8	37/F	Placenta praevia, hemorrhage, 5-31-49	Plasma and blood	108	Possible case
9	63/M	Stab wound of abdomen, 6-23-49	Plasma and blood	84	Recovered
10	59/F	Enucleation, left eye for melanoma, 7-14-49	Plasma	66	Recovered
11	71/F	Anterior and posterior colporrhaphy, 10-29-49	Blood	143	Possible case
12	67/M	Rt. rectus exploration, appendectomy, 6-19-50	Blood	66	Possible case
13	15/F	Ventriculogram and craniotomy, 6-7-50	Plasma and blood	100	Recovered

*All plasma used in this series was irradiated.
†Whole blood was given in all instances in which blood is mentioned.

DISCUSSION

The diagnosis of homologous serum hepatitis is entirely clinical and based on circumstantial evidence: jaundice and evidence of hepatic inflammation or necrosis developing within a period of from two to six months after the administration of the icterogenic agent. It has been postulated that the disease is due to an agent which is separate and distinct from that causing epidemic infectious hepatitis, but there is little more than suggestive evidence for this theory.

MacCallum and Bauer[6] deliberately exposed patients suffering from rheumatoid arthritis to feces and serum from patients in the preicteric stage of infectious hepatitis. It is notable that when serum was inoculated, the incubation period in the patients who developed jaundice was sixty-four, seventy-five, and ninety-two days. In those patients who became jaundiced after oral or nasopharyngeal administration of infectious material, the incubation period was from twenty-one to thirty-one days. This suggests that the route of administration may affect the incubation period of infectious hepatitis.

Neefe[8] emphasized that the term homologous serum hepatitis is epidemiologic, but he apparently was of the opinion that more than one type of virus is implicated and attempted to separate them on clinical grounds. It would seem more likely, however, that the hepatitis which develops after a delay of two or more months is the result of the virus of infectious hepatitis which has been introduced parenterally. Table 4 illustrates this concept.

There is much evidence to suggest that homologous serum hepatitis can be transmitted from patient to patient by improperly sterilized syringes, needles, and other instruments used in laboratory tests. A review of the subject, describing an outbreak of jaundice in a diabetic clinic, recently has been made by Sherwood.[13] In an outbreak such as he describes, occurring in patients of a single community, one can never exclude entirely the possibility that an outbreak of naturally occurring, gastrointestinal tract-transmitted, epidemic infectious hepatitis has not developed.

TABLE 3.—*Incidence of Homologous Serum Hepatitis at Scott and White Memorial Hospital—1942 to July 1, 1950.*

	Nonirradiated Plasma							Irradiated Plasma
	1942	1943	1944	1945	1946	1947	1948	Jan. 1, 1949-July 1, 1950
Blood alone	0	0	0	0	1	1	0	3
Plasma alone	0	0	0	0	4	3	4*	2
Plasma and blood	0	0	0	0	0	5	1	8

Data in this table were compiled from hospital records from 1942 to 1948 and from questionnaires sent to 1,311 patients who received 2,939 transfusions of blood and 77 units of plasma between January 1, 1949, and July 1, 1950, of whom 843 replied.

*One case possibly followed the use of irradiated plasma.

Homologous serum hepatitis can be compared to puerperal sepsis, which, as Semmelweis showed, may be transmitted from patient to patient by carelessness on the physician's part. It therefore is important that every precaution be taken to ensure proper sterilization of needles and syringes used for parenteral administration, for the taking of blood samples, or even for intracutaneous tests. Neefe[8] called attention to the case of the Italian physician who was jailed because improperly sterilized syringes which he used were the apparent cause of an epidemic of hepatitis.

Before ascribing a case of homologous serum hepatitis to one potential source of infection such as blood or plasma, the possibility of intercurrent infectious hepatitis or syringe-transmitted jaundice must be considered. This was not done in any of the earlier reports cited. Under ordinary circumstances, however, the incidence of syringe-transmitted hepatitis must be rather low. McGraw, Strumia, and Burns[7] in studying the incidence of post-transfusion hepatitis at the Bryn Mawr Hospital, Bryn Mawr, Pa., noted 0.2 per cent "possible" and 0.2 per cent "probable" cases in 1,000 patients who had been hospitalized for various conditions but who did not have transfusions of blood or plasma. Our over-all incidence of homologous serum hepatitis after blood and plasma transfusions combined was 1.54 per cent. We believe it is significant that 10 of the 13 cases of hepatitis reported followed transfusions involving the use of irradiated plasma. Two of the 7 units of irradiated plasma given alone were followed by jaundice.

We believe that the efficacy of the irradiation process in the destruction of the hepatitis virus is open to question. The entire procedure is based upon experiments in 15 volunteers who received a small amount of serum and plasma presumably containing a single strain of the virus. Neefe[8] has suggested that irradiation may have been sufficient to destroy some but not all strains of the virus. Manufacturers of both brands of irradiated plasma used during this study employ large pools of plasma (varying from 30 to 40 liters in the case of the first brand of plasma).

TABLE 4.—*A Concept of Infectious Hepatitis and Homologous Serum Hepatitis.*

Infectious Hepatitis (Epidemic)
Reservoir of disease: patient with infectious hepatitis.
Portal of entry: gastrointestinal tract.
Onset: abrupt, often with marked constitutional symptoms.
Incubation period: short.
Transmission: probably by contaminated water or food.
Effect of gamma globulin: prevents disease.[12]
Serum Hepatitis (Sporadic)
Reservoir of disease: asymptomatic carrier (?).
Portal of entry: parenteral inoculation.
Onset: insidious with mild symptoms.
Incubation period: delayed.
Transmission: blood or blood products (by the physician).
Effect of gamma globulin: merely prolongs incubation period.[12]

From the evidence at hand, nonirradiated plasma derived from small pools, as demonstrated by Lehane and his colleagues[5] and by McGraw and his co-workers,[7] may be just as safe a preparation, and possibly safer, since the incidence of jaundice following its use is approximately that which follows the giving of whole blood alone.

We suspect that the incidence of homologous serum hepatitis will vary according to the incidence of the virus of infectious jaundice in any given donor population. Therefore, the amount of virus in pools used to prepare commercial plasma will always be variable, with large pools being more likely to contain large amounts of the virus and thus possibly being more difficult to free from the infectious agent. The difficulty with any method devised at present to destroy the virus is that the agent itself has never been isolated and man is apparently the only susceptible host. The virus is highly resistant to the ordinary methods of sterilization. Although the National Institute of Health has set forth rigid standards for the irradiation process, in no case is the method checked against the actual etiologic agent of the disease.

Since this study was initiated, 3 reports in which homologous serum hepatitis was ascribed to the use of

irradiated plasma have appeared. The first[12] described 2 cases of hepatitis occurring in polycythemic patients who had been subjected to phlebotomies, followed by the injection of irradiated plasma to replace the blood volume. However, it was observed that 15 of 20 patients suffering from polycythemia who did not receive plasma had positive cephalin cholesterol tests. The second report[1] described 3 cases in which all possible factors except irradiated plasma had been eliminated as the icterogenic agent. A third report[4] ascribed homologous serum hepatitis in 14 recipients to one lot of irradiated plasma.

In our series, no 2 patients developing jaundice received plasma of the same lot number. For this reason, occasional failure of the method of irradiation to destroy the virus of homologous serum hepatitis is not likely. In addition, all patients in this series who developed the disease came from different communities.

SUMMARY

Follow-up studies on 1,311 patients who received 2,939 transfusions of blood and 77 units of ultraviolet-irradiated plasma are described.

Thirteen cases of homologous serum hepatitis, including 3 "possible" cases, were observed, an over-all incidence of 1.54 per cent of 843 patients followed. Of these, 10 patients received plasma subjected to irradiation. Two cases of hepatitis occurred in patients who had received only irradiated plasma.

It is concluded that ultraviolet irradiation probably does not render pooled plasma free from the virus of homologous serum hepatitis.

The authors wish to express appreciation to Mrs. Doris Hilley, secretary; Mrs. Judy Ingram, librarian; and the personnel of the Record Department of Scott and White Memorial Hospital for valuable assistance in the preparation of this paper.

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Drs. Greenlee and Terrill, Scott and White Clinic, Temple.

Dr. Sloan, Arkansas Tuberculosis Sanatorium, State Sanatorium, Ark.

ABSTRACT OF DISCUSSION

DR. M. S. MILLAR, Wichita Falls: The demonstration of the potential toxicity of pooled plasma, irradiated or otherwise, is timely and bears heeding. I have observed 1 death from homologous serum hepatitis presumably due to, or at least occurring after the use of, irradiated plasma. This is not significant except that it has made me cognizant of the inherent dangers of this mode of therapy.

Plasmogenic homologous serum hepatitis is frequently serious and occasionally fatal. In the absence of a specific virucidal agent, treatment narrows down to prevention of infection. This entails withholding the use of pooled plasma, including the irradiated variety, except in an emergency, and then only if carefully screened, type-specific whole blood is not immediately available. The routine postoperative use of plasma is to be severely censured as also is its use as a "tonic." I can think of only one other state in which plasma is indicated as an emergency source of readily available protein: the stage of hepatic failure in infectious hepatitis and, ironically enough in homologous serum hepatitis, as suggested by Zimmerman.*

**Zimmerman, H. J.: Personal communication to the author, 1950.*

Tumor Conferences at Anderson Hospital

Interested physicians are invited by the staff of the M. D. Anderson Hospital for Cancer Research, Houston, to participate in weekly tumor clinic conferences at the hospital from 12:30 to 1:30 p. m. every Thursday. Patients are presented and difficult problems of diagnosis and therapy discussed in the conference room of the hospital, 2310 Baldwin Street. A light luncheon can be obtained at the hospital prior to the meetings.

State Board of Health Elects Officers

Dr. O. B. Kiel, Wichita Falls, was reelected to his second two year term as chairman of the State Board of Health during September, announces the Temple *Telegram*. Dr. John Mitchell, Tyler, was named vice-chairman, and J. P. Burden, San Angelo engineer, secretary. Four new members of the board are Drs. James W. Long, Port Arthur, and J. B. Copeland, San Antonio, E. C. Baum, D. O., Austin, and J. T. Stryker, Woodville, pharmacist.

NEWS

COMING MEETINGS AND CLINICS

Texas Medical Association, Dallas, May 4-7, 1952. Dr. Allen T. Stewart, Lubbock, Pres.; N. C. Forrester, 700 Guadalupe St., Austin, Acting Executive Secy.

American Medical Association, Los Angeles, Dec. 4-7, 1951. Dr. John W. Cline, San Francisco, Calif., Pres.; Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secy.

NATIONAL AND REGIONAL

American Academy of Allergy. Dr. Walter S. Burrage, Milwaukee, Pres.; Mr. James O. Kelley, 208 E. Wisconsin Ave., Milwaukee 2, Executive Secy.

American Academy of Dermatology and Syphilology, Chicago, Dec. 8-13, 1951. Dr. Donald M. Pillsbury, Philadelphia, Pres.; Dr. John E. Rauschkolb, 25 Prospect Ave., N. W., Cleveland 15, Secy.

American Academy of General Practice, Atlantic City, March 24-27, 1952. Dr. Jason P. Sanders, Shreveport, La., Pres.; Mr. Mac F. Cahal, 406 W. 34th St., Kansas City 2, Executive Secy.

American Academy of Neurological Surgery, New York, October, 1952. Dr. Henry G. Schwartz, St. Louis, Pres.; Dr. Theodore B. Rasmussen, 950 E. 59th St., Chicago 37, Secy.

American Academy of Obstetrics and Gynecology, Business Meeting, Cincinnati, March 31-April 4, 1952. Dr. Woodard D. Beacham, New Orleans, Pres.; Dr. Ralph A. Reis, 116 S. Michigan Ave., Chicago 3, Secy.

American Academy of Ophthalmology and Otolaryngology. Dr. Frederick C. Cordes, San Francisco, Pres.; Dr. W. L. Benedict, 100 First Ave. Bldg., Rochester, Minn., Secy.

American Academy of Pediatrics. Dr. Paul W. Beaven, Rochester, N. Y., Pres.; Dr. E. H. Christopherson, 636 Church St., Evanston, Ill., Secy.

American Association for Thoracic Surgery, Dallas, May 8-10, 1952. Dr. Frank B. Berry, New York, Pres.; Dr. Paul C. Samson, 2938 McClure St., Oakland 9, Calif., Secy.

American Association of Genito-Urinary Surgeons. Dr. Charles C. Higgins, Cleveland, Pres.; Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secy.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons. Dr. Leroy A. Calkins, Kansas City, Kan., Pres.; Dr. William F. Mengert, 2211 Oak Lawn Ave., Dallas, Secy.

American Cancer Society. Dr. Guy Aud, Louisville, Ky., Pres.; Mr. M. R. Runyon, 47 Beaver St., New York, Exec. Vice-Pres.

American College of Allergists. Dr. John H. Mitchell, Columbus, Ohio, Pres.; Dr. Fred W. Wittich, 423 La Salle Medical Building, Minneapolis 2, Secy.

American College of Chest Physicians, Chicago, June 5-8, 1952. Dr. Chevalier L. Jackson, Philadelphia, Pres.; Mr. Murray Kornfeld, 112 E. Chestnut St., Chicago 11, Exec. Secy.

American College of Physicians, Cleveland, April 21-25, 1952; regional meeting, New Orleans, Feb. 15-16, 1952. Dr. Maurice C. Pincoffs, Baltimore, Pres.; Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Secy.

American College of Radiology, Chicago, Feb. 8, 1952. Dr. Robert R. Newell, San Francisco, Pres.; Mr. W. C. Stronach, 20 N. Wacker Drive, Chicago 6, Executive Secy.

American College of Surgeons. Dr. Henry W. Cave, New York, Pres.; Dr. Michael L. Mason, 40 E. Erie St., Chicago 11, Secy.

American Congress of Physical Medicine, New York, Aug. 25-30, 1952. Dr. Robert L. Bennett, Warm Springs, Ga., Pres.; Dr. Frances Baker, 1 Tilton Ave., San Mateo, Calif.

American Dermatological Association, Colorado Springs, April 23-26, 1952. Dr. Edward A. Oliver, Chicago, Pres.; Dr. L. A. Brunsting, 102 2nd Ave., S. W., Rochester, Minn., Secy.

American Gastro-Enterological Association. Dr. T. Grier Miller, Philadelphia, Pres.; Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco, Secy.

American Gynecological Society, Hot Springs, Va., May 12-14, 1952. Dr. Walter T. Dannreuther, New York, Pres.; Dr. John I. Brewer, 104 S. Michigan Ave., Chicago, Secy.

American Hospital Association, Philadelphia, 1952. Dr. Anthony J. J. Rourke, San Francisco, Pres.; Mr. George P. Bugbee, 18 E. Division St., Chicago, Executive Secy.

American Laryngological, Rhinological, and Otological Society, Toronto, May 20-22, 1952. Dr. C. S. Nash, 277 Alexander St., Rochester 7, N. Y., Pres. and Secy.

American Neurological Association. Dr. S. Bernard Wortis, New York, Pres.; Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secy.

American Ophthalmological Society, Hot Springs, Va., June 5-7, 1952. Dr. Lawrence T. Post, St. Louis, Pres.; Dr. M. C. Wheeler, 30 W. 59th St., New York 19, Secy.

American Orthopedic Association, London, June 30-July 4, 1952. Dr. Fremont Chandler, Chicago, Pres.; Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secy.

American Pediatric Society. Dr. Hugh McCulloch, Chicago, Pres.; Dr. Aims McGuinness, 1740 Bainbridge St., Philadelphia 46, Secy.

American Proctologic Society, Milwaukee, June 4-7, 1952. Dr. R. A. Scarborough, San Francisco, Pres.; Dr. Stuart T. Ross, 131 Fulton Ave., Hempstead, N. Y., Secy.

American Psychiatric Association, Atlantic City, May 12-16, 1952. Dr. Leo H. Bartemeier, Detroit, Pres.; Dr. R. Finley Gayle, 6300 Three Chopt Rd., Richmond 21, Va., Secy.

American Public Health Association. Dr. W. P. Shepard, San Francisco, Pres.; Dr. R. M. Atwater, 1790 Broadway, New York 19, Secy.

American Society of Anesthesiologists. Dr. C. Walter Metz, Denver, Pres.; Dr. J. E. Remlinger, Jr., 188 W. Randolph St., Chicago, Secy.

American Society of Clinical Pathologists. Dr. F. William Sundermann, Atlanta, Ga., Pres.; Dr. Clyde G. Culbertson, Indiana University School of Medicine, Indianapolis, Secy.

American Surgical Association, White Sulphur Springs, April 16-18, 1952. Dr. Daniel C. Elkin, Atlanta, Pres.; Dr. Nathan Womack, University of Iowa, Iowa City, Secy.

American Urological Association, Atlantic City, June 23-26, 1952. Dr. Elmer Hess, Erie, Pa., Pres.; Dr. C. H. deT. Shivers, 121 S. Illinois Ave., Atlantic City, N. J., Secy.

Association of American Physicians and Surgeons. Dr. Denton Kerr, Houston, Pres.; Mr. Harry E. Northam, 360 N. Michigan Ave., Chicago 1, Executive Secy.

International College of Surgeons, U. S. Chapter, Chicago, Sept. 2-5, 1952. Dr. H. W. Meyerding, Rochester, Minn., Pres.; Dr. Arnold S. Jackson, 1516 Lake Shore Drive, Chicago, Secy.

National Tuberculosis Association, Boston, May 26-30, 1952. Dr. Alton S. Pope, Boston, Pres.; Mr. Kemp D. Battle, 1790 Broadway, New York 19, Secy.

Radiological Society of North America, Chicago, Dec. 3-7, 1951. Dr. John S. Bouslog, Denver, Pres.; Dr. D. S. Childs, Medical Arts Bldg., Syracuse 2, N. Y., Secy.

Southern Medical Association, Miami, Nov. 10-13, 1952. Dr. R. J. Wilkinson, Huntington, W. Va., Pres.; Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham, Ala., Secy.

Southern Psychiatric Association. Dr. R. Burke Suitt, Durham, N. C., Pres.; Dr. Newdigate M. Owensby, Medical Arts Bldg., Atlanta, Ga., Secy.

Southern Surgical Association, Hot Springs, Va., Dec. 4-6, 1951. Dr. Frank C. Wilson, Birmingham, Ala., Pres.; Dr. John C. Burch, 2112 West End Ave., Nashville, Tenn., Secy.

Southwest Allergy Forum, Dallas, March, 1952. Dr. C. B. Shuey, Dallas, Pres.; Dr. James Holman, Medical Arts Bldg., Dallas, Secy.

Southwest Regional Cancer Conference. Secy., 209 Medical Arts Bldg., Fort Worth.

Southwestern Medical Association, Albuquerque, N. Mex., 1952. Dr. James Walsh, Douglas, Ariz., Pres.; Dr. W. W. Schuessler, 1415 First National Bank Bldg., El Paso, Secy.

Southwestern Surgical Congress. Dr. Leo J. Starry, Oklahoma City, Pres.; Dr. C. R. Rountree, 1227 Classen, Oklahoma City 3, Secy.

Tri-State Medical Assembly. Dr. W. S. Terry, Jefferson, Pres.; Dr. James Harris, Marshall, Secy.

United States-Mexico Border Public Health Association, Monterrey, March 17-19, 1952. Dr. Wilton L. Halverson, San Francisco, Pres.; Dr. J. Ellington, 314 U. S. Court House, El Paso, Secy.

STATE

Texas Academy of General Practice, San Antonio, Sept. 14-15, 1952. Dr. Van D. Goodall, Clifton, Pres.; Dr. B. H. Bayer, 104 E. Twentieth St., Houston, Secy.

Texas Academy of Internal Medicine, Galveston, Jan. 19-20, 1952. Dr. W. L. Marr, Galveston, Pres.; Dr. John S. Chapman, 3810 Swiss Ave., Dallas, Secy. Meetings restricted to members.

Texas Air-Medics Association. Dr. W. M. Pratt, Houston, Pres.; Dr. J. S. Minnett, 2512 Welborn, Dallas, Secy.

Texas Association of Obstetricians and Gynecologists, Austin, Feb. 8-9, 1952. Dr. S. Foster Moore, San Antonio, Pres.; Dr. Carey Hiett, 603 College Ave., Fort Worth, Secy.

Texas Chapter, American College of Chest Physicians, Dallas, May 5, 1952. Dr. J. E. Dailey, Houston, Pres.; Dr. Howard Smith, 3215 Exposition Blvd., Austin, Secy.

Texas Club of Internists. Dr. Ghent Graves, Houston, Pres.; Dr. Hatch W. Cummings, Jr., 203 Hermann Professional Bldg., Houston, Secy.

Texas Dermatological Society, Dallas, May 5, 1952. Dr. W. H. Connor, Houston, Pres.; Dr. C. H. McCuistion, Capital National Bank Bldg., Austin, Secy.

Texas Diabetes Association, Dallas, May 4, 1952. Dr. D. W. Carter, Jr., Dallas, Pres.; Dr. Ivan Mayfield, 1312 Main, Lubbock, Secy

Texas Division, American Cancer Society. Mr. Frank C. Smith, Houston, Pres.; Mr. J. Louis Neff, 2307 Helena St., Houston 6, Executive Director.

Texas Heart Association, Dallas, May 5, 1952. Dr. Paul V. Ledbetter, Houston, Pres.; Miss Roberta Miller, 411 Reserve Loan Life Bldg., Dallas, Executive Secy.

Texas Hospital Association, Houston, May 20-22, 1952. Mrs. Ruby B. Gilbert, Temple, Pres.; Mrs. Ruth Barnhart, 2210 Main St., Dallas, Secy

Texas Neuropsychiatric Association, Dallas, May 5, 1952. Dr. David Wade, Austin, Pres.; Dr. James Blair, 1708 Nix Professional Bldg., San Antonio, Secy.

Texas Orthopedic Association, Dallas, May 5, 1952. Dr. G. W. N. Eggers, Galveston, Pres.; Dr. Margaret Watkins, 3629 Fairmount St., Dallas, Secy.

Texas Pediatric Society, Dallas, Oct. 17-18, 1952. Dr. C. S. E. Touzel, Fort Worth, Pres.; Dr. M. C. Carlisle, 1410 Austin Ave., Waco, Secy.

Texas Public Health Association, Galveston, Feb. 17-20, 1952. Mr. Barnie A. Young, Austin, Pres.; Mr. Earle W. Sudderth, Dallas County Health Department, Court House, Dallas, Executive Secy.

Texas Radiological Society, Houston, Jan. 18-19, 1952. Dr. Curtis H. Burge, Houston, Pres.; Dr. R. P. O'Bannon, 650 Fifth Ave., Fort Worth, Secy.

Texas Railway and Traumatic Surgical Association, Dallas, May 5, 1952. Dr. A. W. Hartman, San Antonio, Pres.; Dr. W. F. Parsons, First National Bank Bldg., Fort Worth, Secy.

Texas Rheumatism Association, Galveston, January 18, 1952. Dr. G. W. N. Eggers, Galveston, Pres.; Dr. Robert H. Mitchell, 210 Medical Arts Bldg., Fort Worth, Secy.

Texas Society for Mental Health, Fort Worth, March 6-7, 1952. Dr. Warren T. Brown, Houston, Pres.; Mrs. Elizabeth F. Gardner, 2504 Jarratt Ave., Austin 21, Executive Secy.

Texas Society of Anesthesiologists, Dallas, May, 1952. Dr. L. F. Schuhmacher, Jr., Houston, Pres.; Dr. Werner Hoeflich, 2301 Reba, Houston, Secy.

Texas Society of Gastroenterologists and Proctologists, Dallas, May 5, 1952. Dr. Dolph L. Curb, Houston, Pres.; Dr. C. P. Hardwicke, 120 W. Seventh St., Austin.

Texas Society of Ophthalmology and Otolaryngology, Austin, Dec. 7-8, 1951. Dr. Edward D. Dumas, San Antonio, Pres.; Dr. Lyle Hooker, 627 Esperson Bldg., Houston, Secy.

Texas Society of Pathologists, Dallas, Jan. 27, 1952. Dr. Stuart A. Wallace, Houston, Pres.; Dr. A. O. Severance, 205 Camden, San Antonio, Secy.

Texas Surgical Society, Houston, April 7-8, 1952. Dr. Robert M. Moore, Galveston, Pres.; Dr. Albert W. Hartman, 414 Navarro St., San Antonio 5, Secy.

Texas Tuberculosis Association, San Antonio, April 18-19, 1952. Dr. David McCullough, Kerrville, Pres.; Miss Pansy Nichols, 208 E. Ninth, Austin, Executive Secy.

Texas Urological Society, Dallas, Feb. 4, 1952. Dr. William H. Heck, San Antonio, Pres.; Dr. J. D. Mitchell, 1414 Medical Arts Bldg., Dallas, Secy.

DISTRICT

Second District Society, Odessa, March 11, 1952. Dr. A. H. Daniell, Brownfield, Pres.; Dr. C. B. Knox, Jr., Seagraves, Secy.

Third District Society, Plainview, April 8-9, 1952. Dr. Pauline Miller, Lubbock, Pres.; Dr. James T. Hall, 1302 Avenue Q, Lubbock, Secy.

Fourth District Society, Brady, Nov. 14, 1951. Dr. S. Braswell Locker, Brownwood, Pres.; Dr. B. A. Hallum, Brady, Secy.

Fifth and Sixth Districts Society, Corpus Christi, July 11-12, 1952. Dr. G. Turner Moller, Corpus Christi, Pres.; Dr. Y. C. Smith, 1813 S. Alameda Blvd., Corpus Christi, Secy.

Seventh District Society. Dr. George W. Tipton, Austin, Pres.; Dr. D. B. Faubion, 1403 C Guadalupe, Austin, Secy.

Eighth District Medical Society. Dr. Leonard Johnson, El Campo, Pres.; Dr. Robert Casey, Texas City, Secy.

Ninth District Society. Dr. F. Ray Black, Huntsville, Pres.; Dr. Lyman C. Blair, 1212 Rothwell, Houston, Secy.

Tenth District Medical Society, Lufkin, February, 1952. Dr. T. A. Fears, Beaumont, Pres.; Dr. J. M. White, Jr., 3149 Proctor, Port Arthur, Secy.

Eleventh District Society, Athens. Dr. Griff T. Ross, Mount Enterprise, Pres.; Dr. Marlin T. Braswell, Henderson, Secy.

Twelfth District Society, Waco, Jan. 8, 1952. Dr. S. C. Richardson, Bryan, Pres.; Dr. J. C. Terrell, Stephenville, Secy.

Thirteenth District Society. Dr. W. B. Adamson, Abilene, Pres.; Dr. Robert D. Moreton, 815 Medical Arts Bldg., Fort Worth, Secy.

Fourteenth District Society, Greenville, June, 1952. Dr. N. L. Barker, Paris, Pres.; Dr. L. W. Johnston, 502 W. College St., Terrell, Secy.

Fifteenth District Society. Dr. C. B. Reed, Clarksville, Pres.; Dr. William E. Jones, 619 Main, Texarkana.

CLINICS

Dallas Southern Clinical Society, Dallas, March 17-20, 1952. Miss Betty Elmer, Medical Arts Bldg., Dallas 1, Executive Secy.

International Medical Assembly of Southwest Texas, San Antonio, Jan. 22-24, 1952. Dr. John J. Hinchey, P. O. Box 2445, San Antonio, Secy.

New Orleans Graduate Medical Assembly. Dr. Woodard D. Beacham, Room 105, 1430 Tulane Ave., New Orleans 12, Secy.

North Texas-Southern Oklahoma Fall Clinical Conference. Wichita Falls. Dr. W. L. Powers, Hamilton Bldg., Wichita Falls, Chairman.

Oklahoma City Clinical Society Conference, Oklahoma City. Mrs. Muriel R. Waller, 512 Medical Arts Bldg., Oklahoma City 2, Executive Secy.

Postgraduate Medical Assembly of South Texas, Houston, July 21-23, 1952. Dr. C. A. Dwyer, Secy., 229 Medical Arts Bldg., Houston.

American College of Surgeons

Twenty-nine Texans were among the 903 initiates received into fellowship in the American College of Surgeons on November 9 in San Francisco. At the same time two other Texas physicians, Dr. Willard R. Cooke, Galveston, and Dr. John Warner Duckett, Dallas, were nominated for a three-year term on the board of governors.

The initiates included Drs. Luke W. Able, Houston; A. Burton Anderson, Houston; Eldon O. Bradford, Temple; Alvin Wayne Bronwell, Lubbock; Elbert M. Cyrus, Jr., Fort Worth; Edward T. Driscoll, Midland; Robert Burl Elliott, Houston; Charles F. Engelking, San Angelo; Dan C. Gill, Dallas; Russell B. Graham, Dallas; Samuel H. Haigler, Wharton; Walter F. Hasskarl, Jr., Brenham; J. M. Hooks, Abilene; Ira J. Jackson, Galveston; Wishard S. Lorimer, Jr., Fort Worth; Otis Earl Marler, Corpus Christi; Robert P. McDonald, Fort Worth; Joseph P. McNeill, Dallas; Harry Allen Miller, Jr., Brownsville; David F. Nickell, Harlingen; Harold O. Padgett, Marshall; Robert S. Sparkman, Dallas; J. L. Spezia, Houston; Orman H. Trimble, Wichita Falls; Leopoldo Villareal, El Paso; James C. Walker, Temple; Mina D. Watkins, Lubbock; Jan R. Werner, Amarillo; and Walter M. Woodward, Huntsville.

SOUTHERN MEDICAL ASSOCIATION NAMES OFFICERS

The 1952 annual meeting of the Southern Medical Association has been scheduled for November 10-13 in Miami.

At the Dallas meeting concluded this past November, Dr. R. J. Wilkinson, Huntington, W. Va., took office as president. Other officers who will serve during the coming year are the following: Dr. Walter C. Jones, Miami, president-elect; Dr. Alphonse McMahon, St. Louis, first vice-president; Dr. Frank A. Selecman, Dallas, second vice-president; Mr. C. P. Loranz, Birmingham, secretary-manager; Dr. M. Y. Dabney, Birmingham, editor of the *Southern Medical Journal;* Dr. R. L. Sanders, Memphis, chairman of the council; and Dr. Fred E. Woodson, Tulsa, vice-chairman of the council. Dr. Curtice Rosser, Dallas, the immediate past-president, is a new member of the board of trustees.

Two Dallas doctors, Drs. George Truett James and Dean C. Kipp, won the *Oklahoman* and *Times* Cup and Dallas *Morning News* Cup, respectively, in the golf tournament. They will retain these cups for one year.

Registration of 2,053 guests and others brought the total of those who attended the recent session to more than 3,000.

The 1951 meeting was the fourth to be held in Texas, the other three being held as follows: 1915 Dallas, 1925 Dallas, and 1934 San Antonio.

International Medical Assembly of Southwest Texas

The International Medical Assembly of Southwest Texas will hold its sixteenth annual meeting January 22-24, 1952, at the Municipal Auditorium, in San Antonio. Distinguished guest speakers will be as follows:

DR. RICHARD B. CATTELL, surgeon, Lahey Clinic, Boston.

DR. RAYMOND W. MCNEALY, professor of surgery, Cook County Graduate School of Medicine, Chicago.

DR. DWIGHT E. HARKEN, surgeon, Peter Bent Brigham Hospital, Boston.

DR. HENRY L. BOCKUS, professor of medicine and chairman of the Department of Medicine, University of Pennsylvania Graduate School of Medicine, Philadelphia.

DR. H. MARVIN POLLARD, associate professor of internal medicine, University of Michigan Medical School, Ann Arbor.

DR. ROLLAND J. WHITACRE, president of the medical staff and director of the Department of Anesthesiology, Huron Road Hospital, Cleveland, Ohio.

DR. V. PARDO-CASTELLO, assistant professor of dermatology and syphilology, University of Havana Medical School, Havana, Cuba.

DR. JOHN C. BURCH, professor of obstetrics and gynecology and acting head of the Department, Vanderbilt University Hospital, Nashville.

DR. NEWELL W. PHILPOTT, chairman and professor of the Department of Obstetrics and Gynecology, McGill University, Montreal, Canada.

DR. PHILLIPS THYGESON, clinical professor of ophthalmo'ogy, University of California Medical School, San Jose, Calif.

DR. GUY A. CALDWELL, head of Department of Orthopedic Surgery, Oschner Clinic and Foundation Hospital, New Orleans.

DR. MERCER G. LYNCH, assistant professor of otolaryngology, Oschner Clinic, New Orleans.

DR. MALCOLM B. DOCKERTY, consultant and head of a section in surgical pathology, Mayo Clinic, Rochester, Minn.

DR. MALCOLM R. HILL, professor of proctology and head of the Department of Proctology, College of Medical Evangelists, Los Angeles.

DR. EDWARD B. NEUHAUSER, associate professor of radiology, Harvard Medical School, Boston.

DR. GEORGE F. LULL, secretary and general manager, American Medical Association, Chicago.

DR. PAUL V. WOOLLEY, JR., professor of pediatrics, Wayne University School of Medicine, Detroit.

LT. COL. GERALD M. MCDONNELL, M. C., Chief, Armed Forces Special Weapons Project, Department of Defense, Washington, D. C.

The program has been designed to be especially instructive to general practitioners as well as to specialists. On Tuesday night, January 22, a cocktail party and dinner dance will be held for doctors and their wives. The following night the Woman's Auxiliary to the Bexar County Medical Society will entertain the ladies and a stag party will be given for the doctors and exhibitors.

The registration fee of $20 should be mailed to the International Medical Assembly, P. O. Box 2445, San Antonio, and hotel reservations should be made directly with the hotel of choice.

INTERNATIONAL PHARMACOPEIA PUBLISHED

The first volume of the first International Pharmacopeia was published in October in Geneva by the World Health Organization. Prepared upon the recommendation of approximately eighty member states, the book contains descriptions of two hundred drugs and is expected to set uniform standards in drugs throughout the world. Available in English and French, the first volume contains forty-three appendices with instructions for establishing purity and strength of drugs. Drug names are given in Latin.

The second volume, now being prepared, will contain the antibiotic drugs and specifications for administering drugs by injection and in tablet form.

Medical Publishing House Purchased

The medical book publishing business of Thomas Nelson and Sons, New York, has been purchased by the Williams and Wilkins Company of Baltimore, publishers of medical books and periodicals, effective November 15.

PERSONALS

Dr. Moses Ashkenazy, Houston, chief of neurosurgery at Veterans Administration Hospital and assistant professor of neurosurgery at Baylor University College of Medicine, was named as joint recipient of the $1,000 award given by the Chilean Iodine Educational Bureau, reports the Dallas Morning *News*. The award, made in recognition of research in the use of radioactive iodine for detection of brain tumors, was shared by a University of Minnesota professor.

Dr. L. H. Reeves, Fort Worth, and *Dr. William A. Carroll,* Claude, were among the physicians honored recently by the University of Tennessee in recognition of services rendered to their communities since their graduation, informs the Fort Worth *Star-Telegram* and the Claude *News*.

Dr. and Mrs. Charles F. Williams, Abilene, recently donated property valued at $30,000 to Abilene Christian College, states the Fort Worth *Star-Telegram*.

Dr. C. M. Phillips, Levelland, was named president of the recently chartered Hockley County Development Foundation, Inc., according to the Fort Worth *Star-Telegram*.

Dr. Calvin W. Harris, Ranger, is president for 1951-1952 of the Ranger Chamber of Commerce, the Abilene *Reporter-News* states.

Dr. R. L. Griggs, Baird, was honored on his seventy-sixth birthday at a party and open house, the Baird *Star* reports.

Dr. James M. Alexander, Abilene, was guest of honor on his birthday at a dinner-dance, the Abilene *News* informs.

Dr. M. A. Biggers, Canyon, observed his eightieth birthday anniversary September 11, states the Canyon *News*.

Dr. and Mrs. H. S. Hall, Newton, observed their golden wedding anniversary in August, according to the Newton *Herald*.

Mrs. James A. Hill, wife of the Houston physician, died November 22 in Houston, states the Houston *Chronicle*.

TWO TEXAS CITIES OFFER COURSES

Courses being offered by the University of Texas Postgraduate School of Medicine in Houston within the next half-year will be as follows:

Office orthopedics, Thursdays, from January 10 through February 8, 7:30 to 9 p. m.

Office dermatology, Tuesdays, from February 19 through March 25, 7:30 to 9 p. m.

Roentgenology for general practice, Mondays, from January 7 through March 10, 7 to 9 p. m.

The details of two additional courses in review of therapy in internal medicine and advances in surgery, scheduled for the latter part of March, will be announced later. Further information about any of the courses may be obtained by writing The University of Texas, Postgraduate School of Medicine, 207A Hermann Professional Building, Houston.

In San Antonio, the Postgraduate School of Medicine will continue a course in pediatrics from December and will add four new courses. The schedule appears below:

Pediatrics, Tuesdays, from January 8 through February 5, 7 to 8 p. m.

Modern Therapeutics, Fridays, from January 4 through April 11, 7 to 9 p. m.

Radiology, Tuesdays, from February 12 through April 1, 7 to 8 p. m.

Dermatology, Tuesdays, from January 8 through April 1, 8 to 9 p. m.

Physiology, Fridays, from April 18 through May 9, 7 to 9 p. m.

Physicians who would like more data on the San Antonio courses may write Dr. James A. Bethea, Robert B. Green Hospital, 515 Morales Street, San Antonio.

PEDIATRICS TRAINING PROGRAM

The Postgraduate Division and the Child Health Program of the University of Texas School of Medicine, the Texas Academy of General Practice, and Wyeth, Inc., sponsored a one day pediatrics training program in Tyler on December 6. Instructors were Drs. Arild E. Hansen, professor of pediatrics; Harriet M. Felton, associate professor of pediatrics; W. R. Hepner, Jr., assistant professor of pediatrics; and E. E. Baird, professor of clinical pathology, all of the University of Texas Medical Branch, Galveston.

Laboratory Training in Communicable Diseases

The Communicable Disease Center of the Public Health Service has announced a schedule of laboratory refresher training courses to be offered from January 1 through December 31, 1952. The courses to be given will cover bacterial, parasitic, virus, and venereal diseases and tuberculosis and rabies. Application forms and additional information may be obtained from the Chief, Laboratory Training Services, Communicable Disease Center, U. S. Public Health Service, P. O. Box 185, Chamblee, Ga.

Medical Branch Course Cancelled

The pediatrics conference scheduled for April 15-17, 1952, at the University of Texas Medical Branch, Galveston, has been cancelled.

American Academy of Neurological Surgery

The American Academy of Neurological Surgery held its annual meeting October 4-6 in Houston. Officers elected were Dr. Henry G. Schwartz, St. Louis, president; Dr. J. Lawrence Pool, New York, vice-president; and Dr. Theodore B. Rasmussen, Chicago, secretary and treasurer. The 1952 meeting will be held in October in New York.

LIBRARY SECTION

PACKAGE SERVICE

The package library consists of collections of reprints and other periodical material on various subjects, prepared for lending to members of the Association. Request for packages should be addressed "Library, Texas Medical Association, 700 Guadalupe Street, Austin, Texas." Twenty-five cents in stamps should be enclosed with the request to cover postage and part of the expense of collecting the material. Packages are allowed to remain in the hands of the borrower for 14 days.

ACCESSIONS

The following additions were made to the Library during November:

Reprints received, 738.

Journals received, 242.

Books received, 16.

Tumors of the Eye, Reese; *Your Diabetes, Complete Manual for Patients,* Pollack and Krause, Paul B. Hoeber, Inc., New York.

Studies in Medicine, Volume of Papers in Honor of Robert W. Keeton, Department of Medicine, University of Illinois College of Medicine, Charles C. Thomas, Springfield, Ill.

Surgery of Peripheral Nerve, Selitz; *Visceral Innervation and Its Relation to Personality,* Kuntz; *Untoward Reactions of Cortisone and ACTH,* Derbes and Weiss, Charles C. Thomas, Springfield, Ill.

Physical Medicine and Rehabilitation for the Clinician, Krusen; *Specialties in General Practice,* Cecil; *Surgical Practice,* Staff, Lahey Clinic, Boston, W. B. Saunders Company, Philadelphia.

Horace Wells, Dentist, Father of Surgical Anesthesia, Horace Wells Centenary Committee, Case, Lockwood and Brainard, Hartford, Conn.

1951 Yearbook of Obstetrics and Gynecology, Greenhill, The Yearbook Publishers, Chicago, Ill.

Biological Antagonism, Martin; *Statistics for Medical Students and Investigators in the Clinical and Biological Sciences,* Moore and Knowles, Blakiston Company, Philadelphia.

Plastic Surgery of the Nose, Brown and McDowell, C. V. Mosby Company, St. Louis.

Yellow Fever in Galveston, Republic of Texas, 1839, Leake, University of Texas Press, Austin, Texas.

Directory of Fellowship Awards, 1917-1950, Rockefeller Foundation, New York.

SUMMARY OF SERVICE

Local users, 53.	Borrowers by mail, 59.
Local packages, 33.	Packages mailed, 61.
Items borrowed, 552.	Film borrowers, 54.
	Films loaned, 48.

MOTION PICTURE FILM LIBRARY

Motion picture films on medical subjects, 16 mm., both silent and sound, some in color, and suitable for either medical or lay audiences, are available for loan to county medical societies, hospital staffs, or individual physicians, on request. Borrowers will be requested to pay only the cost of shipment of the films, by express, with insurance, and for any damage to films in the hands of the borrower.

Request for films should be addressed to "Motion Picture Film Library, Texas Medical Association, 700 Guadalupe Street, Austin, Texas." A list of available films with descriptions, will be furnished on request.

The following motion pictures were loaned by the Library during the month of November:

Accident Services (British Information Services)—Dr. John W. Tunnell, Taft.

Adolescence, Introduction to (Mead Johnson)—Dr. James R. Hyslop, Del Rio.

Allergy (Mead Johnson)—Dr. C. G. Goddard, Bastrop.

Anemia, Erythroblastic (Mead Johnson)—DeWitt County Medical Society, Cuero.

Anemias, The (Lederle Laboratories)—DeWitt County Medical Society, Cuero.

Anesthesia, Low Spinal (Modified Saddle Block) In Obstetrics (Ciba Pharmaceutical Products, Inc.)—Dr. C. G. Goddard, Bastrop.

Anesthesia, Regional (Winthrop-Stearns, Inc.)—Drs. Rutledge and Lee, Daingerfield.

Anoxia, Physiology of (Linde Air Products)—Staff, St. Vincent's Hospital, Sherman.

Appendicitis in Childhood (Mead Johnson)—Santa Anna Hospital, Santa Anna, and Staff, St. Vincent's Hospital, Sherman.

As Others See Us (American Hospital Association)—Dilley Clinic Hospital Staff, Dilley, Texas.

Aureomycin, The Versatile Antibiotic (Lederle Laboratories)—Drs. Rutledge and Lee, Daingerfield.

Breast Cancer: The Problem of Early Diagnosis (American Cancer Society)—Drs. Rutledge and Lee, Daingerfield.

Breech Extraction with Forceps (Mead Johnson)—San Antonio Branch, Post Graduate School of Medicine, University of Texas, San Antonio.

Bronchial Asthma (E. Fougera and Company)—Scott and White Memorial Hospitals School of Nursing, Temple.

Cataract Surgery (Dr. Ray K. Daily)—Alpha Epsilon Delta, University of Texas, Austin.

Child Study: Life History of Mary (Dr. Margaret Fries)—Veterans Administration Hospital, Marlin.

Cholecystectomy (Mead Johnson)—Dr. C. W. Schoenvogel, Brenham, and Dr. V. M. Payne, Jr., Dallas.

Coarctation of the Aorta, Surgical Treatment for (Dr. Philip Thorek)—Dr. V. M. Payne, Jr., Dallas.

Doctor Speaks His Mind (American Cancer Society)—Rotary Club, Quanah.

Dysmenorrhea, Primary (G. D. Searle and Company)—King's Daughters Clinic and Hospital, Temple.

Esophagogastrostomy, Supra-Aortic, for Carcinoma of the Midportion of the Esophagus (Dr. Philip Thorek)—U. S. Army Hospital, Fort Hood.

Eyes For Tomorrow (Hurst Eye, Ear, and Throat Clinic)—Dilley Clinic Hospital Staff, Dilley.

Eyes, Your Children's (British Information Services)—Gonzales High School and Parent-Teacher Association, Gonzales.

Gastro-Intestinal Cancer: The Problem of Early Diagnosis (American Cancer Society)—Dr. V. M. Payne, Dallas.

Goiter Surgery (Mead Johnson)—Scott and White Memorial Hospitals School of Nursing, Temple.

Hemicolectomy for Carcinoma of the Right Side of the Colon (Dr. Philip Thorek)—Dr. C. W. Schoenvogel, Brenham.

Here's Health The American Way (American Medical Association)—Wylie Lions Club, Wylie.

Hysterectomy (Mead Johnson)—Dr. J. W. Morrisset, Wylie.

Immunization Against Infectious Diseases (Lederle Laboratories)—Lillie Jolly School of Nursing, Houston.

In Daily Battle (National Foundation for Infantile Paralysis)—Rotary Club, Quanah.

Infantile Paralysis, Your Fight Against (National Foundation for Infantile Paralysis)—Rotary Club, Quanah.

Lesions of Vulva, Vagina and Cervix (Dr. Karl John Karnaky)—Drs. John and Rose Tunnell, Taft.

Management of the Failing Heart (Varick Pharmacal Company, Inc.)—Drs. John and Rose Tunnell, Taft.

Oxygen, The Administration by Oro-Pharyngeal Catheter (Mead Johnson)—Dilley Clinic Hospital Staff, Dilley.

Pneumonia (Mead Johnson)—University of Houston, Houston, and College of Pharmacy, University of Texas, Austin.

Poliomyelitis, Sister Kenney Method of Treatment (Dr. Herbert Hipps)—University of Houston, Houston.

Portacaval Shunt for Portal Hypertension (Dr. Philip Thorek)—Dr. J. W. Morrisset, Wylie.

Pyloric Stenosis, Congenital, Surgical Treatment for (Dr. Philip Thorek)—St. Joseph's Hospital Interns, Fort Worth.

Question in Time (American Cancer Society)—Rotary Club, Quanah.

Red Wagon (Swift and Company)—Methodist Men's Club, Ranger.

Sutures Since Lister (Johnson and Johnson)—Dr. John W. Tunnell, Taft, and College of Pharmacy, University of Texas, Austin.

Techniques of Injection (Becton, Dickinson and Company)—Dr. John W. Tunnell, Taft, and St. Joseph's Hospital, Wellington.

They Also Serve (American Medical Association)—Alpha Epsilon Delta, The University of Texas, Austin.

Traitor Within (American Cancer Society)—Rotary Club, Quanah.

Trichomonal and Monilial Vaginitis (G. D. Searle and Company)—Drs. John and Rose Tunnell, Taft.

Varicose Veins and Their Complications (Becton, Dickinson and Company)—College of Pharmacy, University of Texas, Austin.

What Is Cancer? (American Cancer Society)—Alpha Epsilon Delta, Baylor University, Waco.

When Bobby Goes to School (Mead Johnson)—Dr. James R. Hyslop, Del Rio, and Gonzales High School and Parent-Teacher Association, Gonzales.

BOOK NOTICES

[1]The Physiology of the Newborn Infant

Clement A. Smith, M. D., Associate Professor of Pediatrics, Boston Lying-in Hospital, Harvard Medical School. Second edition. Cloth, 348 pages. $7.50. Springfield, Charles C. Thomas, 1951.

This is an extension of the first edition published in 1945. The contents and scope of the book have been greatly expanded. Each of the thirteen chapers covers certain aspects of the normal physiology of the newborn.

This book is unique in its field in that no other writer has accumulated so many sound physiologic observations on newborn infants in one book.

[2]The Life of Peter Fayssoux

Chalmers G. Davidson. Cloth, 151 pages. $2.75. Published by Medical Association of South Carolina, Columbia, 1950.

"I can only say in general that in grandeur, splendor of buildings, decorations, equipages, numbers, commerce, shipping, and indeed in almost everything, it far surpasses all I ever saw or expect to see in America." Such a place was the prerevolutionary Charleston into which the wealthy young Fayssoux made his debut, as described by the not partial observer, John Quincy of Massachusetts, forebear of Abigail Adams and of President John Quincy Adams.

Fayssoux was an offspring of the Huguenot group which fled the persecutions under Louis XIV and whose thrift and intelligence had made current the phrase, "rich as a Huguenot." When he decided to take up medicine, he was sent to Edinburgh, at that time considered the finest seat of medical science in the world. There he got a competent acquaintance with gross anatomy, with the current traditions of medical practice, along with an aptitude for discussing medical questions in a highly latinized jargon, but from premises which to modern ears sound like sheer nonsense. Fayssoux became in time the first physician in Charleston, but why it would be hard to say. As his contemporary Dr. Samuel Johnson remarked in his life of the physician-poet Mark Akenside, "the physician works in an obscure medium and the causes of his success or failure are difficult to determine."

Fayssoux's resolute struggle to obtain from the British better treatment for American prisoners of war and his staunch support of the revolutionary cause as physician-in-chief to the army of the state could not fail to have gained the esteem of his fellow townsmen.

In those days the activities of a physician were more likely to prove a danger than a help to the sick. The bleedings, purgings, pukings, sweatings, starvation, dehydration, together with the antimony, mercury, and aconite given, often were fatal. Fayssoux lost five of his first six children patients, as his biographer says, probably through his efforts at therapy.

[1]*G. Clifford Thorne, M. D., Austin.*
[2]*W. R. Houston, M. D., Austin.*

At some time between 1795, when Fayssoux died of a stroke at the age of 50 years, and the present, there came a year when the average doctor was more likely to help than to harm the average patient. Conservatively, for the United States 1885 might be chosen, although some persons would say not before 1900.

This biography is an interesting contribution to medical history. One constant in all history, it must not be forgotten, is the intelligence quotient of mankind.

[3]Introduction to the Regulation of Blood Pressure and Heart Rate

Corneille Heymans, M. D., Professor of Pharmacology, University of Ghent (Belgium). Lexide, 60 pages. $2. Springfield, Charles C. Thomas, 1950.

The book presents a brief resumé of the physiologic processes which operate in maintaining a relatively stable blood pressure. Although the larger portion of the book is concerned with the neurogenic pathways and reflex patterns which affect the blood pressure, a smaller portion is devoted to the regulation of the heart rate and to the factors which influence the cerebral, coronary, muscular, and renal circulations. The approximately three pages devoted to shock is so sketchy as to be of almost no value. The book is written partially in an expanded outline form.

Probably the primary value of the book is that the fundamental principles outlined can serve as a rapid refresher (the book can be easily read in about thirty minutes). It has too many diagrams and descriptions of the methods used to demonstrate the various reflexes for such a short exposition. Even so the book is poorly documented and the references quoted are largely in foreign or not easily obtained journals. Consequently, it is of little value as a reference work.

[4]Cancer As I See It

Henry W. Abelmann, M. D. Cloth, 95 pages. $2.75. New York, Philosophical Library, 1951.

This hundred-page volume is, as its name indicates, a philosophical musing of one who has seen enough cancer to be challenged by it but who writes about it in too detached a way for it to be of real value as a modern contribution to knowledge of the disease.

The set-up of the book is interesting in that the table of contents helpfully summarizes each chapter. Within the volume this analysis is repeated at the beginning of each chapter and is adhered to consistently. The author's work is devoted to his belief in the "Germ-Virus" etiology of cancer, and he has lined up his theory rather well with older and sometimes discarded ideas of cancer. He has not documented this argument, and the reader is supposed to know the works of men quoted or at least to accept the author's citations as adequate and correct. I have not attempted to check his references, but in general Dr. Abelmann appears to have been familiar with them and has probably done well by them. Today, many research workers believe that a virus may play a part in the causation of cancer, but this volume, because it is not well annotated, offers only remote support to that theory.

The author uses italics effectively in bringing out important ideas. One quotation illustrates this plan and the germ-virus etiology: *"It is my conviction that the mold and its toxic products cause cancer, that the fungi growing outside or between the tissue cells cause an inflammatory process which I take as one form of cancer, and that the virus—the minute stage of the fungus—growing within the cell, causes cancer as we know it today."*

Dr. Abelmann has incorporated much that is fine and modern in his book. Here, we find stress on biopsy, the need for careful examination of patients, and the need for early diagnosis, for research and widespread public education, and for a broad approach to the problem. Along with these thoroughly accepted methods, he states flatly: "The cause of cancer is attributed to the mold fungus, an organism capable of modifying its form and properties when subjected to a change in environment." The reviewer wishes that the author had named the offending organism and given data to support this theory. Dr. Abelmann simply believes in the infectious nature of cancer and has lined up arguments to support this belief. Maybe a book on this subject today has a place on the bookshelf, but most physicians and students of cancer will find it poor reading and a waste of time.

[5]Clinical Tropical Medicine

R. B. H. Gradwohl, M. D., Sc. D., Pathologist to Christian Hospital and Director, Gradwohl School of Laboratory and X-Ray Technique, St. Louis, Editor-in-Chief; Luis Benitez Soto, M. D., Professor of Pathology, Military Medical School, Mexico, and Oscar Felsenfeld, M. D., Director of Bacteriology, Hektoen Institute for Medical Research of the Cook County Hospital, and Professorial Lecturer, University of Illinois College of Medicine and the Graduate College, Chicago, Editors. Cloth, 1,572 pages. $22.50. St. Louis, C. V. Mosby Company, 1951.

This ambitious volume is a collection of monographs by fifty-seven authors who competently handle their assigned topics. Each entity is thoroughly reviewed from the standpoint of etiology, pathology, diagnosis, and treatment. Most of the authors have had extensive personal experience with the disorders which they describe. The translation of those articles written in other languages has been gracefully accomplished.

In addition to complete presentations of the diseases usually to be found in a book about tropical medicine, there are detailed chapters dealing with laboratory problems peculiar to the hot climates. What should be included in such a book cannot be decided to the satisfaction of all, but it is surprising to find chapters on rickettsialpox, Q fever, and tularemia, while smallpox and rabies are omitted.

The work is unnecessarily long because of repetition; for example, the information on therapy being discussed with each disease, special chapters devoted to therapy seem redundant. Repetitious data concerning prophylaxis are to be found separated by nearly the entire thickness of the volume. More recent advances in therapy of malaria and amebiasis are inadequately reported. Comprehensive bibliographies appear at the end of each chapter. (More than six hundred references are listed for the rickettsioses.) The illustrations are abundant and of good quality; however, the typography in places is confusing.

This book should prove invaluable to the physician practicing under isolated conditions in the tropics. It should be in all teaching libraries, but it is too voluminous for recommendation to the average student.

[6]Orthopedic Surgery

Walter Mercer, M. B., Ch. B., F.R.C.S. (Edin.), F.R.S. (Edin.); Professor of Orthopedic Surgery, University of Edinburgh; Director of Orthopedic Services to the South-Eastern Regional Hospital Board, Scotland. Fourth edition. Cloth, 998 pages. $10. Baltimore, Williams and Wilkins Company, 1950.

Many of the chapters of this book have been revised and several entirely rewritten. Newer trends in treatment are dis-

[3]*E. E. Eddleman, Jr., Lt. (j. g.), MC, USNR, El Toro (Santa Ana), Calif.*

[4]*Charles Phillips, M. D., Temple.*

[5]*Warren W. Moorman, M. D., Fort Worth.*

[6]*Albert A. Tisdale, M. D., Austin.*

cussed in some detail, especially in the chapters on arthritis and affections of the spine. Written in the typical English manner which makes it easy to read, the book is of special value to the student in orthopedics as well as the general practitioner. Facts are presented in a clear, precise, and interesting manner. Theoretical discussion and statistical tabulation have been eliminated. As in the former edition, treatment with the exception noted previously, is not detailed. Under no condition is this volume to be considered an operative textbook. Operations are mentioned but in only a few instances in any detail. Mercer's book is an excellent companion for any of the various surgical books on the market today in that it supplements but does not overlap.

In the treatment of congenital clubfoot no mention is made of the use of roentgen ray in determining when complete correction has been obtained. Streptomycin in the operative treatment of Pott's disease is not considered. Prolonged traction and plaster casts is the only method offered in the treatment of Perthes' disease. The Kenny treatment of acute poliomyelitis is properly credited by quoting Key: "What is good in her treatment is not new and what is new is not good."

A good discussion of prolapsed intervertebral disk is included. Blount stapling for altering epiphyseal growth also is described, thus showing that the book is up to date and a valuable addition in the library of anyone interested in orthopedics.

[7]Diabetes Mellitus—Principles and Treatment

Garfield G. Duncan, M. D., Clinical Professor of Medicine, Jefferson Medical College; Director of the Medical Divisions of the Pennsylvania Hospital and the Benjamin Franklin Clinic, Philadelphia. Cloth, 269 pages. $5.75. Philadelphia, W. B. Saunders Company, 1951.

In Duncan's book, which covers the clinical aspects of diabetes thoroughly, I could find nothing but sound and conservative discussions of controversial phases of diabetes.

A comparison of this book to the writings of the late twenties and even those of the last two decades is interesting. During the last quarter of a century there has been a distinct swing toward liberalism in the management of diabetic patients. I do not mean that Duncan advocates free diets and arbitrary doses of insulin with uncontrolled glycosuria; on the contrary, he insists upon reasonable control. I refer mainly to the time when three doses of regular insulin were given daily and foods were meticulously weighed. The physician strived to keep his patients within normal limits at all times. Now there is some relaxation in management.

Specifically, Duncan's criteria of good control for a diabetic child includes adequate nourishment, a fasting blood sugar below 150 mg. per 100 cc. and postprandial levels below 200 mg. per 100 cc., and freedom from "major" or consistent glycosuria. Certainly this relaxation means much to the patient and parents. Diabetic control used to be a painful ordeal.

Duncan prefers a low fat diet based largely on the theories of Rabinowitch. High protein and high carbohydrate diets are recommended. Most students of diabetes follow this program in general while some are less fearful of higher fat diets than is Duncan. It would seem perfectly safe to exhibit an increased fat component for those who need to add weight.

Duncan recommends the food exchange schedule in his diet prescriptions. The exchange system lends much more freedom for the diabetic patient and simplifies his diet arithmetic. I like for my patients to know the fundamentals of diet computation so that they can work out an exchange system of their own.

I gained the impression that Duncan has not had a large experience with NPH insulin. It has been my observation that the diabetes of most patients can be adequately controlled by this new type of insulin without the addition of regular insulin.

Of less importance but mentionable is Duncan's use of the term "hypoglycemic reactions." He dislikes the term "insulin shock" but for simplicity "insulin reaction" seems desirable. Furthermore, the perennial question of glucose in the treatment of diabetic coma is a snag in this review. This point has been argued repeatedly. It is not my practice to use glucose in diabetic coma routinely as Duncan advocates.

The author includes education in the treatment of diabetes. I agree that education is important and teach children that diet, insulin, exercise, and knowledge are the four essentials in the management of diabetes.

My opinion is that the most generally valuable parts of this book are those pertaining to the overweight diabetic patient. Dr. Duncan emphasizes throughout the error of treating obese diabetic patients with insulin. If every general practitioner and internist would pay especial attention to the relationship of obesity to diabetes, diabetic patients would receive much better care.

Although it contains nothing new, the book is a comprehensive treatise on diabetes. The material is readable. The chapters on food and diet prescriptions are excellent and the discussion of the insulins and their application is usable. The chapter on complications of diabetes is stimulating. A chapter on pregnancy complicating diabetes also is contained in the book.

[8]Essay on the Cerebral Cortex

Gerhardt von Bonin, M. D., Professor of Anatomy, College of Medicine, University of Illinois, Chicago. Cloth, 150 pages. $3.75. Springfield, Ill., Charles C. Thomas, 1950.

This essay is an unusual type of medical writing. The prologue and the epilogue are philosophic discussions in which the author attempts to localize the soul in the cerebral cortex. The historical development of the idea of a soul is interesting.

The historical introduction is a play-by-play development of the knowledge of the activities of the cerebral cortex. The phylogenetic section briefly reviews the embryology and the functional anatomy of the cerebral cortex. The one on general morphology surveys histologic studies of the cortex with discussion of the individual brain cells, their layering, and differences in function and histology. Relatively little that has not been written before in other publications is covered in these last two chapters.

The subdivision on the cortex, likewise, is a survey of previously published data. There is an excellent resumé of corticocortical pathways, as well as discussion on the pathways of the special senses. The acoustic, ocular, and olfactory sensations are reviewed, and the somesthetic sensations also discussed. Prediction, which might further be interpreted as "the pathways of thought," is considered briefly, although little anatomic or physiologic proof is given. The idea of predictions and its localization in some part of the frontal lobe is presented. Likewise, emotions are discussed in this rather new approach.

This is an excellent summary of previous existing knowledge of the cerebral cortex with new ideas on emotions and the "centers of prediction," as the author refers to them. All discussions have a philosophic, metaphysical trend, the epilogue and prologue being nonmedical in nature.

[7]*J. Shirley Sweeney, M. D., Gainesville.*

[8]*Ralph Hanna, M. D., Austin.*

ORGANIZATION SECTION

AMERICAN MEDICAL ASSOCIATION

COUNCIL ON INDUSTRIAL HEALTH

The twelfth annual Congress on Industrial Health of the American Medical Association will take place January 18 and 19, 1952, at the Hotel William Penn, Pittsburgh, Pa.

A meeting of the council and chairmen of state committees on industrial health will be held January 17. "Industrial Health Experiences in Pennsylvania" will be the theme of this program.

A panel on periodic health examinations and lectures on clinical pulmonary physiology, the noise problem, and eye health will be part of the program January 18. Sponsored by the Council on Industrial Health and the Woman's Auxiliary to the American Medical Association, a program entitled "Occupation Housewife" will be presented January 19. A program on human relations and mental health is scheduled concurrently.

1952 Fellowship Dues Cancelled

A recent decision of the American Medical Association Board of Trustees is that fellowship dues will be eliminated in 1952. The dues, the Board feels, are no longer required since A.M.A. members are now paying membership dues, and furthermore, the fellowship dues requirements are too confusing to members as a whole. Fellowship dues of $5 for 1951 are still payable.

TEXAS MEDICAL ASSOCIATION

COUNCILS TO MEET IN JANUARY

Two Association councils, the Executive Council and the Council on Scientific Work, will meet during January at the Driskill Hotel, Austin. The midwinter meeting of the former has been set by Dr. Allen T. Stewart, President, for January 19 and 20. The Sunday preceding the Executive Council meeting, January 13, the Council on Scientific Work will convene to make final plans for the 1952 annual session program. Members of the two Councils and others who should attend will be notified of the specific meeting places and hours by mail, since plans for both meetings were being completed as this JOURNAL went to press.

ELECTIVE COUNCILS OF ASSOCIATION

The nature and duties of the various councils of the Texas Medical Association are delineated in the editorial section of this JOURNAL. The Executive and War Councils are composed of ex-officio members. Members of the other Councils are as follows:

Council on Medical Defense: Drs. Charles L. McGehee, San Antonio, chairman; Harold M. Williams, Austin; John H. Wootters, Houston; B. E. Pickett, Jr., Crystal City; and Frank A. Selecman, Dallas.

Council on Medical Jurisprudence: Drs. J. B. Copeland, San Antonio, chairman; Robert D. Moreton, Fort Worth; John K. Glen, Houston; G. W. Cleveland, Austin; and Elliott Mendenhall, Dallas.

Council on Scientific Work: Drs. May Owen, Fort Worth, chairman; L. Bonham Jones, San Antonio; Kleberg Eckhardt, Corpus Christi; George W. Waldron, Houston; and Arthur C. Scott, Jr., Temple.

Council on Medical Economics: Everett C. Fox, Dallas, chairman; A. G. Barsh, Lubbock; Raleigh R. Ross, Austin; H. H. Cartwright, Breckenridge; and E. W. Jones, Wellington.

Council on Medical Education and Hospitals: Drs. M. O. Rouse, Dallas, chairman; Truman G. Blocker, Jr., Galveston; W. S. Barcus, Fort Worth; R. Lee Clark, Jr., Houston; and John L. Matthews, San Antonio.

Left to right: Dr. Charles L. McGehee, Dr. Everett C. Fox, and Dr. Milford O. Rouse.

Ex-officio members of the five councils are Dr. Allen T. Stewart, President, and N. C. Forrester, Acting Executive Secretary.

Dr. Charles L. McGehee, San Antonio, is chairman of the Council on Medical Defense. Born February 6, 1900, he was graduated from the University of Oklahoma School of Medicine, Oklahoma City, in 1931; he also holds a degree from the College of Pharmacy of that institution. From 1933 to 1936 he served as a captain in the United States Army Medical Corps.

Dr. McGehee is treasurer of the Bexar County Medical Society, a director and a past president of the Bexar County chapter of the American Academy of General Practice, a director of the International Medical Assembly of Southwest Texas, and a member of the Bexar County Board of Health. A physician and surgeon, he is married and has a daughter. Golfing is his hobby.

Chairman of the Council on Medical Jurisprudence is *Dr. Joseph Bryson Copeland,* San Antonio, who as a delegate to the American Medical Association was the subject of a biographical sketch in the November, 1951, JOURNAL. His picture accompanied that sketch.

Dr. May Owen, Fort Worth, is concluding her first five-year term as chairman of the Council on Scientific Work. Since its establishment in 1926 the Council has had only three other chairmen, Dr. A. C. Scott, Temple; Dr. C. C. Green, Houston; and Dr. Arthur C. Scott, Jr., also of Temple. Under the guidance of these four physicians, the Council has accepted the responsibility of maintaining a high standard for the scientific programs of the Association.

Chairman of the Council on Medical Economics is *Dr. Everett C. Fox,* Dallas dermatologist. He was born September 28, 1902. Graduated from Baylor University College of Pharmacy, Dallas, he was awarded the degree of doctor of medicine from Baylor University College of Medicine, Dallas, in 1928. He did postgraduate work at New York Post Graduate Medical School and Hospital of Columbia University, New York, where he was assistant in dermatology, and was certified in 1935 by the American Board of Dermatology and Syphilology. He has written numerous articles on dermatology, syphilology, and cutaneous malignancy. From May, 1942, until November, 1945, Dr. Fox was on active duty with the United States Navy; he held the rank of captain at discharge.

Dr. Fox has been secretary-treasurer, director of clinics, and president of the Dallas Southern Clinical Society and president of the Dallas County Medical Society, and is a director of the Dallas Health Museum. He is serving his second term as a representative of the Section on Dermatology of the American Medical Association in the A.M.A. House of Delegates and is a member of the Committee on Medical Care of the Indigent, one of the seven correlating committees of the A.M.A.'s Council on Medical Service. He is clinical professor of dermatology and syphilology at Southwestern Medical School, Dallas, and a fellow of the American College of Physicians and the American Academy of Dermatology. Dr. Fox was a member of the city council of Dallas from 1947 to 1949. He is a fisherman in his time off.

Dr. Milford Owen Rouse, Dallas gastroenterologist, heads the Council on Medical Education and Hospitals and also this year the Special Committee on Postgraduate Work of the Texas Medical Association. The son of a minister, he was born August 10, 1902. After graduation from Baylor University College of Medicine, Dallas, in 1927, he served an internship at the Station Hospital, Fort Sam Houston; he was commissioned first lieutenant at that time. He is certified by the American Board of Internal Medicine and the subspecialty Board of Gastro-Enterology.

Dr. Rouse has been secretary of the Dallas Health Museum from 1946, the year of its founding, to the present. A fellow of the American Medical Association and the American College of Physicians, he is councilor from Texas for the Southern Medical Association. He is past president of the Dallas Southern Clinical Society and was given the first Health Award of the Dallas Hospital Council in 1949. Dr. Rouse taught clinical medicine at Baylor University College of Medicine from 1928 until 1943, at which time the college was moved to Houston, and has been professor of clinical medicine (gastroenterology) at Southwestern Medical College since then. He and Mrs. Rouse are the parents of one daughter.

Guests to Be Honored in 1952

A complete roster of guests and luncheon experts for the 1952 annual session has accepted invitations to contribute to the program, and details of their participation are being arranged.

The two out-of-state guests of the Association for the Dallas meeting next May will be Dr. Robert P. Glover, thoracic and cardiovascular surgeon from Philadelphia, and Arthur L. Conrad, president of the Heritage Foundation in Chicago, attorney, and world traveler. Dr. Glover, who is associated with the Hahnemann Medical College, University of Pennsylvania, and various hospitals, probably will speak on some topic relating to surgery in the treatment of heart disease. Mr. Conrad, formerly associate administrator of the National Physicians Committee and officer in the Navy entrusted with such duties as acting as personal courier to President Franklin D. Roosevelt during the period of the so-called Big Three Conferences, has had a wide experience in business and public relations and will bring a message of import to physicians.

For the second year, the clinical luncheons will feature members of the medical profession in Texas who are recognized authorities in their fields. The ten physicians who will form the panels to answer questions after the three luncheons on Tuesday of the annual session and the scientific sections they will represent are as follows: Dr. A. C. Broders, Sr., Temple, Clinical Pathology; Dr. Everett L. Goar, Houston (ophthalmologist), Eye, Ear, Nose, and Throat; Dr. Sidney R. Kaliski, San Antonio, Pediatrics; Dr. George S. McReynolds, Galveston (otolaryngologist), Eye, Ear, Nose, and Throat; Dr. William F. Mengert, Dallas, Obstetrics and Gynecology; Dr. Halcuit Moore, Dallas (pediatrician), Public Health; Dr. Robert M. Moore, Galveston, Surgery; Dr. W. Grady Reddick, Dallas, Internal Medicine; Dr. Martin Schneider, Galveston, Radiology; and Dr. George W. Waldron, Houston (surgeon), General Practice.

COUNTY SOCIETIES

Bastrop County Society

September 25, 1951

Importance of Immunizations—W. W. Kelton, Austin.
Development of Progress in Mental and Physical Growth of Children—J. M. Coleman, Austin.

The above scientific program was presented at the meeting of the Bastrop County Medical Society in Bastrop on September 25. Preceding the meeting, Dr. and Mrs. R. W. Loveless and Dr. and Mrs. C. G. Goddard, Bastrop, were hosts for dinner.

Bell County Society

October 3, 1951

(Reported by E. R. Veirs, Secretary)

Surgical Significance of Swallowing Difficulties—William D. Seybold, Houston.
Discussion—G. V. Brindley, Jr., Temple, and W. B. Woodson, Temple.

The Bell County Medical Society met October 3 in Temple and the above scientific program was presented.

The society discussed and voted to participate in the telephone postgraduate broadcasts in 1952 proposed by the Committee on Postgraduate Education of the Texas Medical Association. E. O. Bradfield presented a model constitution and by-laws which was adopted by the society.

Dr. Bradfield explained the necessity of reappointing a military affairs committee. A. C. Scott, Jr., explained the purpose and function of the former military affairs committee and urged that the officers appoint a new committee of seven members, giving full consideration to representation of various veteran and non-veteran groups on this committee.

Dallas County Society

October 9, 1951

(Reported by W. W. Fowler, Secretary)

Management of Carcinoma of the Colon and Rectum—Richard B. Cattell, Boston.

At the October 9 meeting of the Dallas County Medical Society Dr. Cattell of the Lahey Clinic, Boston, delivered the second annual Charles M. Rosser lecture on the above mentioned subject. He was introduced by John V. Goode, Dallas.

Frank H. Kidd, Dallas, introduced Champ Lyons, professor and chairman of the Department of Surgery at the University of Alabama, Mobile, who spoke briefly.

Physicians elected to membership in the society and announced at the meeting included James A. Martin, Nelson A. Bryan, Dan Ray Sutherland, Oliver F. Bush, Harold R. Thomas, and Ben K. Howard.

November 13, 1951

(Reported by W. W. Fowler, Secretary)

Symposium: Endometriosis
Pathology—John L. Goforth, Dallas.
Incidence in Parkland and Baylor Hospitals—J. W. Tabler, Dallas.
Research and Recent Advances—C. R. Bates, Dallas.
Treatment—William P. Devereux, Dallas.

W. E. Barnett, Dallas, was moderator of the above program presented at the meeting of the Dallas County Medical Society, November 13, when the society met with the medical staff of St. Paul's Hospital.

New members elected to membership were Maurice A. Roe, Bernard Schnitzer, and A. D. Garner.

On recommendation of the board of directors, Ozro Woods was appointed the official representative of the society to the joint policy committee of the blood procurement program of the J. K. and Susie L. Wadley Research Institute and Blood Bank and the American Red Cross.

A resolution urging consideration by the city council to provide suitable quarters for the health department of Dallas was presented and adopted.

Homer Donald, Dallas, chairman of the nominating committee, presented nominations for officers.

Eastland-Callahan-Stephens-Shackelford-Throckmorton Counties Society

September 25, 1951

Recent Advancement of Texas Medical Association—Philip R. Overton, Austin.

The Eastland-Callahan-Stephens-Shackelford-Throckmorton Counties Medical Society met September 25 at Eastland. Preceding the meeting and program, a dinner for members of the medical society and auxiliary was held.

Mr. Overton, general attorney for the state Association, spoke on the above named subject and Mr. N. C. Forrester, Austin, Acting Executive Secretary of the Texas Medical Association, showed a motion picture, "Newer Antibiotics." W. E. Syers, public relations counsel for the Texas Medical Association, spoke.

Members of the auxiliary were guests of Mrs. Horace Horton for a tour of the ceramics plant and later held a business meeting at the home of Mrs. James Whittington, Eastland.

Gray-Wheeler-Hansford-Hemphill-Lipscomb-Roberts-Ochiltree-Hutchinson-Carson Counties Society

October 16, 1951

Symptom Diagnosis in the Newborn Infant—H. V. L. Sappler, Oklahoma City.

The above program was presented at a meeting of the Gray-Wheeler-Hansford-Hemphill-Lipscomb-Roberts-Ochiltree-Hutchinson-Carson Counties Medical Society in Pampa on October 16. Edward Williams, Pampa, introduced the guest speaker. After his talk a lengthy question and answer period on pediatrics was held.

At the business session the members considered the telephone postgraduate broadcasts proposed by the Committee on Postgraduate Work of the Texas Medical Association. The motion was made to invite the Third District Division, North, of the Texas Cancer Society to meet in Pampa. Carl M. Lang, Pampa, was accepted as a member of the society.

Harrison County Society

October 16, 1951

(Reported by H. O. Padgett, Secretary)

Treatment of Carcinoma of Cervix—T. M. Riley, Shreveport.

The above illustrated lecture was presented at the meeting of the Harrison County Medical Society October 16 in Marshall.

Diabetic Detection Week was discussed and the society voted to assist with the drive. A letter from the Robert E. Lee P.-T.A. expressing appreciation for the showing of the motion picture "Self Examination of the Breast" was read. The Texas Medical Association's proposed postgraduate telephone broadcasts were discussed and the society voted to hold the January, February, and March meetings at a time and place to receive the broadcast series.

Lamar County Society

October 4, 1951

(Reported by W. E. Hunt, Jr., Secretary)

Atresia of Esophagus and Tracheo-Esophageal Fistula—D. L. Paulson, Dallas.

Twenty members and one guest were present for the October 4 meeting in Paris of Lamar County Medical Society. The paper named above was presented and was followed by general discussion.

The society voted to participate in the telephone postgraduate broadcast series for January, February, and March, 1952, as proposed by the Committee on Postgraduate Work of the Texas Medical Association. The society also voted to buy the secretary's kit from the state office.

Lubbock-Crosby Counties Society

November 6, 1951

(Reported by John B. Rountree, Jr., Secretary)

W. E. Syers, Austin, public relations counsel for the Texas Medical Association, and Philip R. Overton, Austin, general attorney for the state Association, were guest speakers at the meeting of the Lubbock-Crosby Counties Medical Society in Lubbock on November 6. Mr. Syers spoke on the legislative and public relations program of the association and Mr. Overton reviewed legislative procedures.

Robert H. McCarty presided in the absence of the president, Mina D. Watkins. A nominating committee composed of Ben Hutchinson, M. M. Ewing, and E. E. McClure was named. Melvin Lee Thornton and Emmet Shannon were accepted as members of the society.

Tarrant County Society

October 16, 1951

(Reported by W. P. Higgins, Jr., Secretary)

A Surgeon's Religion—R. J. White, Fort Worth.

J. D. Murphy, chairman of the scientific exhibits committee of the Texas Medical Association, announced that space for exhibits at the 1952 annual session is available. Memberships of Donald R. Bernhardt, James A. Farley, Alice F. Gambill, and James F. Hooker, III, were approved.

The above program was presented, and the attendance prize for the evening was awarded to Gerald A. King.

November 6, 1951

(Reported by W. P. Higgins, Jr., Secretary)

Diagnosis and Treatment of Intra-oral Tumors—James W. Hendrick, San Antonio.

In addition to the scientific program outlined above, a talk by Dr. John S. Badeau, president of the American University of Cairo, Egypt, on causes for problems of the Middle East was presented at a meeting November 6 in Fort Worth of the Tarrant County Medical Society and the Fort Worth District Dental Society. Approximately one hundred physicians and dentists attended.

Tribute was paid to Drs. Lily Roberts and J. V. Anderson, deceased members of the society. Applications of membership of Claude J. Ballard, James P. Heberle, and Harry H. Tomplins, Jr., were accepted.

J. F. McVeigh announced that members of the Woman's Auxiliary to the Tarrant County Medical Society would collect and distribute receipts for poll taxes at the next meeting. Members were urged also to support the fund raising campaign for increased hospital bed facilities in Fort Worth.

W. Kenneth Thurmond, president of the dental society, was introduced.

Tom Green-Eight County Society

November 5, 1951

(Reported by C. A. Kunath, Secretary)

Physiology of Gastric Secretion and Its Relationship to the Ulcer Problem (lantern slides)—Harry Oberhelman, Chicago.

At the November 5 meeting in San Angelo of the Tom Green-Eight County Medical Society Dr. Oberhelman spoke on the above named subject. He illustrated operations on animals and other experiments proving the relationship be-

tween excessive gastric secretion and the formation of peptic ulcer.

Perry J. C. Byars reported that the committee appointed to study the proposed project of the Young Women's Service League establishing a treatment center for handicapped children favored its endorsement. The motion passed. The society also voted to sponsor two delegates to the Hi-Y and Tri-Hi-Y to the Texas Youth and Government program. A motion that the society sponsor on a local level the essay contest for high school students of the Association of American Physicians and Surgeons was approved. The subject of the essay is "Why the Private Practice of Medicine Furnishes This Country with the Finest Medical Care."

A nominating committee was appointed. After the business meeting and program a social hour with members of the auxiliary was held.

Travis County Society

October 16, 1951

(Reported by John F. Thomas, Secretary)

Symposium: Anemias of Infancy and Childhood—Clifford Thorne, Sam Wilborn, J. M. Coleman, W. W. Kelton, T. D. McCrummen, and Philip T. Flynn, Austin.

The above outlined scientific program was presented at a meeting of the Travis County Medical Society held October 16 in Austin.

Physicians recently elected to membership in the society are Benjamin F. Simms and William C. Adamson.

November 15, 1951

Symposium: Nodules in the Skin
Axillary Hydradenitis—Roy H. Kirkpatrick, Taylor
Sweat Gland Adenoma—Joe Bailey, Austin.
Xanthoma—Paul W. Barker, Austin
Granular Cell Myoblastoma—R. A. Lucas, Austin.

The above program was presented at the Travis County Tumor Conference held November 15 at the Brackenridge Hospital Nurses Home, Austin.

DISTRICT SOCIETIES

Eleventh District Society

October 25, 1951

A symposium on roentgenologic diagnosis was presented at the meeting of the Eleventh District Medical Society on October 25 in Athens.

At the business meeting Marlin Braswell, Henderson, was elected to fill the unexpired term of the secretary, John M. Travis, now of Wills Point. Allen T. Stewart, Lubbock, President of the Texas Medical Association, was guest speaker at a dinner.

AUXILIARY SECTION

AUXILIARY NEWS

Bell County Auxiliary

Dr. A. Ford Wolf, Temple, chairman of the Bell County Medical Society advisory committee, addressed members of the Bell County Auxiliary at a recent meeting in Temple. Dr. Wolf discussed local and national health bills as well as other legislation.

Mrs. E. D. McKay, Temple, introduced guests and new members. Committee reports presented stressed working together for health, individual service, and advancement of the Auxiliary's goal of good medical care.—Mrs. Vincent J. Simmon, Reporter.

Brazoria County Auxiliary

A dinner meeting held jointly with members of the medical society September 27 in Freeport opened the year's activities for the Brazoria County Auxiliary. After dinner separate business meetings were held. The auxiliary discussed plans for a luncheon to honor the State Auxiliary President, Mrs. O. W. Robinson, Paris; welcomed a new associate member, Mrs. Marvin Russell, Angleton; and named Mrs. Josephine Mann as chairman for civil defense.

The Brazoria County Medical Auxiliary met October 25 with the medical society in West Columbia for dinner, after which separate business meetings were held.

Mrs. Martha Walker of the Brazoria County Library showed a film, "Teacher Observance of School Children." Mrs. C. T. Stone, Galveston, was a guest.—Mrs. M. W. Hardwick.

Officers of the Woman's Auxiliary to the Texas Medical Association: President, Mrs. O. W. Robinson, Paris; President-Elect, Mrs. Robert F. Thompson, El Paso; First Vice-President (Organization), Mrs. V. M. Longmire, Temple; Second Vice-President (Physical Examinations), Mrs. John H. Wootters, Houston; Third Vice-President (Today's Health), Mrs. R. T. Travis, Jacksonville; Fourth Vice-President (Program), Mrs. Cecil O. Patterson, Dallas; Recording Secretary, Mrs. E. W. Coyle, San Antonio; Treasurer, Mrs. John D. Gleckler, Denison; Corresponding Secretary, Mrs. Clarence E. Gilmore, Paris; Publicity Secretary, Mrs. A. H. Neighbors, Sr., Austin; Parliamentarian, Mrs. T. Herbert Thomason, Fort Worth.

Galveston County Auxiliary

The Woman's Auxiliary to the Galveston County Medical Society held the opening meeting of its thirty-second year October 16 at a luncheon at the Buccaneer Hotel.

Guests of honor were Mrs. O. W. Robinson, Paris, President of the Woman's Auxiliary to Texas Medical Association, and Dr. Hamilton Ford, Galveston, president of the Galveston County Medical Society.

Arrangements for the luncheon were handled by Mesdames Harvey C. Slocum, chairman; Robert M. Moore, and Andrew Magliolo. Chairmen of the standing committees presented reports. Mrs. Charles R. Allen, president, presided at the meeting.—Mrs. M. A. Caravageli, Recording Secretary.

Grayson County Auxiliary

The Grayson County Medical Auxiliary entertained with a tea November 9 in the home of Mrs. I. C. Bates, Sherman, in honor of Mrs. O. W. Robinson, Paris, President of the Woman's Auxiliary to the Texas Medical Association, and Mrs. W. A. Lee, Denison, district council woman. Mrs. Robinson spoke on the auxiliary's relationship to nurse recruiting and civil defense.

Mrs. A. J. Fant, Sherman, and Mrs. James Colville, Sherman, were welcomed as new members. Approximately thirty-five members and two guests, Mrs. J. Barker and Mrs. N. Townsend of Paris attended.—Mrs. F. M. Sporer.

Harris County Auxiliary

The annual fall tea of the Woman's Auxiliary to Harris County Medical Society was held September 24 in the home of the president, Mrs. Henry R. Maresh, Houston. Officers served as hostesses and were assisted by the committee chairmen.

Mr. Edward Truitt, manager of the Credit Bureau of Greater Houston, was guest speaker at the monthly luncheon meeting of the Harris County Auxiliary held October 29 in Houston. Mr. Truitt's topic was, "The Cominform at Work."

The Southwest Blood Bank was discussed, and Mrs. L. L. D. Tuttle spoke on civil defense. Mrs. Paul W. Best and Mrs. Walter A. Ford were cochairmen.

The Woman's Auxiliary to the Harris County Medical Society met November 26 at the Junior League in Houston for a luncheon and a showing of hats designed by Mr. Herbert Wells.

Models for the show included past presidents of the auxiliary, Mesdames Roy D. Wilson, W. B. Thorning, Sr., William A. Toland, J. Herbert Page, John H. Wootters, J. Charles Dickson, Clyde M. Warner, Mark H. Latimer, Frank J. Iiams, Charles Thomas, W. S. Red, Jr., A. N. Boyd, Fred Y. Durrance, L. L. D. Tuttle, Carlos R. Hamilton, John K. Glen, and Guy E. Knolle.

Mrs. Joseph B. Foster lead the pledge of loyalty and Mrs. Norborne B. Powell paid tribute to the past presidents of the auxiliary. Mrs. W. P. Bonin was chairman of the program.

Guest at the luncheon was Mrs. O. W. Robinson, Paris, President of the Woman's Auxiliary to the Texas Medical Association. Mrs. Robinson was honored in the evening at a buffet supper with members of the board as hostesses.—Mrs. N. B. Powell, Publicity Secretary.

Kerr-Kendall-Gillespie-Bandera Counties Auxiliary

A motion picture, "Self Detection of Cancer in the Female Breast," was shown to members of the Kerr-Kendall-Gillespie-Bandera Counties Auxiliary at the meeting held November 2 in the home of Mrs. Duan E. Packard, Kerrville. The Auxiliary will sponsor the presentation of this film to women's organizations in the area.

After a short business meeting, Mrs. Lloyd Luna, Kerrville, reviewed a book, "Bells on Their Toes." Assistant hostesses were Mesdames Gibbs Milliken, C. C. Jones, Jr., E. L. Dyer, and D. R. Knapp, Kerrville.—Mrs. Russell E. Guill, Secretary.

Lamar County Auxiliary

Mrs. John A. Stephens, Paris, was hostess to members of the Lamar County Auxiliary at a coffee held November 1.

Mrs. H. W. Parchman presented a report on "Today's Health," and Mrs. N. L. Barker reported on the forthcoming nurse recruitment program.—Mrs. W. L. Kelley.

McLennan County Auxiliary

The Woman's Auxiliary to McLennan County Medical Society met October 24 in Waco to hear Mr. John McNamara, attorney, speak on socialism.

At the business session plans for the year were outlined and donations were made to the community chest and the American Red Cross. Cooperation in the sale of tuberculosis Christmas seals and with the blood bank was urged.

Announcement was made of an open meeting to be held in December in observance of Doctors' Day. The members discussed assisting the health committee in its project concerning the care of undernourished children.

A coffee and social hour were held after the meeting.—Mrs. Milton Spark, Chairman.

Orange County Auxiliary

Mrs. E. W. Schlies and Mrs. Geza Gaspar were hostesses to members of the Woman's Auxiliary to the Orange County Medical Society recently in Orange.

Mrs. Leo Peters, Jr., president, conducted the business session at which plans were made for a Christmas party and project. Mrs. G. Y. Swickard spoke on nurse recruitment, emphasizing the needs and opportunities of the nursing field.

Tarrant County Auxiliary

Mrs. V. Y. Rejebian, Dallas reviewer and radio commentator, was guest speaker at a meeting of the Tarrant County Auxiliary on November 2 in Fort Worth. The program was arranged by the public relations committee. Dr. May Owen, Fort Worth, introduced the speaker.

Taylor-Jones Counties Auxiliary

The Taylor-Jones Counties Auxiliary met October 9 in Abilene in the home of Mrs. L. J. Webster with Mrs. J. D. Magee presiding at the business session.

New members were introduced and a humorous skit on parliamentary procedure directed by Mrs. Mack Bowyer, Abilene, was presented.

Hostesses were Mesdames L. J. Webster, Ernest Kimbrough, David Pugh, W. R. Snow, Jarrett Williams, Roy T. Lester, Coleman Burns, and James Cadenhead.

Mr. Larry Wells of the Taylor Health Unit showed a motion picture, "So Much for So Little," at the meeting of the Taylor-Jones Counties Auxiliary held November 13 in the home of Mrs. Jack Crow, Abilene.

Mrs. David Pugh was in charge of the program and hostesses were Mesdames Crow, Travis Smith, T. Wade Hedrick, Bernard Ailts, O. W. Little, E. R. Middleton, J. C. Duff, and Knox Pittard.—Mrs. C. A. McFadden, Publicity Secretary.

Travis County Auxiliary

Dr. Allen T. Stewart, Lubbock, President of the Texas Medical Association, spoke on "This Year of Decision," at the October meeting of the Travis County Auxiliary in Austin.

Dr. Stewart pointed out that many problems confront the world and that the mode of life and system of government under which we live must be protected. He urged fighting socialistic movements which are contrary to the principles upon which this government was founded.

Plans were made for members of the auxiliary to staff the canteen of the Austin Blood Bank.

Mrs. O. W. Robinson, Paris, President of the Woman's Auxiliary to the Texas Medical Association, was honored at a luncheon November 20 in Austin by the Woman's Auxiliary to the Travis County Medical Society.

After luncheon Mrs. Robinson addressed the group on public relations. She stressed the importance of health education as a theme of auxiliary work in cooperation with the development of health education by physicians. Mrs. Robinson stated that the auxiliary is cooperating in the civil defense program and in the program for the recruiting of nurses.

Among the guests at the luncheon were three members of the Seventh District Auxiliary, Mrs. Joe Shepperd, Burnet; Mrs. John Martin, Georgetown; and Mrs. Dick Gregg, Round Rock.

Members of the hostess committee were Mesdames A. H. Neighbors, Jr., and James Eckhardt, chairmen; and James Herrod, T. J. Archer, Charles B. Dildy, G. G. Zedler, Dalton Richardson, Joe Gilbert, S. O. Baggett, Charles W. Bailey, Robert E. Bratton, Allen Forbes, and J. C. Thomas, all of Austin.—Mrs. T. N. Watt, Publicity Chairman.

Eleventh District Auxiliary

The Woman's Auxiliary to the Eleventh District Medical Society met October 25 in Athens at the home of Mrs. W. R. Wilcox, Sr. A tea was held preceding the business meeting and program. Reports from the county auxiliaries

were given. Guests introduced by the president, Mrs. Lynn Hilbun, Henderson, were Mrs. O. W. Robinson, Paris, President of the Woman's Auxiliary to the Texas Medical Association, and Mrs. R. T. Travis, Jacksonville, chairman of "Today's Health" for the State Auxiliary.

A nominating committee composed of Mesdames L. B. Windham, Tyler; J. T. Boyd, Jacksonville; and H. D. Kuykendall, Carthage, was appointed.

Mrs. N. D. Geddie, Sr., Athens, introduced Mrs. C. M. Weekley, Athens, who presented the program of the afternoon, which included musical selections by Mrs. Maston Stover, Mrs. Newburn Stirman, and Miss Charlotte Nash; and a book review of "Here I Stand" by Miss Nickie Newbill.

After the program the members met with the doctors for dinner.—Mrs. H. D. Kuykendall, Reporter.

DEATHS

W. F. SCHMALTZ

Dr. Walter Franklin Schmaltz, Dallas, Texas, died October 15, 1951, after a long illness of paralysis agitans and spinal arthritis.

Born near Washington, Ill., November 26, 1883, Dr. Schmaltz in his early childhood moved with his family to Lincoln, Neb., where he attended public schools and colleges, graduating in 1910 from Lincoln Medical College of Cotner University. From June, 1910, until April, 1917, when he volunteered for military service, he practiced gen-

DR. W. F. SCHMALTZ

eral medicine in Iowa. After the war Dr. Schmaltz studied and operated at several eye, ear, nose, and throat clinics and hospitals in New York for one year. Since September, 1921, he resided in Dallas where he specialized in diseases of the eye, ear, nose, and throat. He also served part time in his specialty at Veterans Administration Hospital, Dallas, until October, 1938, when he accepted a position at the Veterans Administration Hospital in Waco. Dr. Schmaltz retired in 1944 and at the time of his death he held the rank of lieutenant colonel, retired, in the Medical Corps, U. S. Army Reserve.

A member of the American Medical Association and Texas Medical Association for many years through Dallas County Medical Society, Dr. Schmaltz was elected to honorary membership in the state organization in 1946. He received certification in his speciality by the American Board of Otolaryngology. Dr. Schmaltz was a Shriner and a Scottish Rite Mason and a Christian gentleman.

Dr. Schmaltz is survived by his wife, the former Miss Florence Hansen whom he married December 25, 1909, at Lincoln; a daughter, Mrs. J. J. Smith, and three grandchildren of Arlington, Va.

An obituary ordinarily will not be published more than four months after date of death. Cooperation in reporting deaths of physicians and in furnishing appropriate biographical material promptly is solicited.

S. M. MORRIS

Dr. Seth Mabry Morris, Texas City, Texas, last surviving member of the original faculty of the University of Texas Medical Branch, died August 8, 1951, after a heart attack.

A native of Austin, Dr. Morris was born June 15, 1867, the son of Dr. and Mrs. W. A. Morris. After attending the public schools of Austin, Dr. Morris matriculated in the academic department of the University of Texas for its first long session in 1883, when classes were held in the temporary capitol building. He received a bachelor of science degree in 1888, and during his senior year he served as tutor in chemistry at a salary of $100 for the year. He continued his education at the College of Physicians and Surgeons of Columbia University in New York, receiving his degree of doctor of medicine in 1891. He returned to Austin to practice with his father.

The faculty for the new medical school in Galveston was being selected, and the young physician was named professor of chemistry. Dr. Morris continued in that position until 1907, when he resigned because of his realization that biochemistry, about which he knew little, instead of elementary inorganic chemistry and qualitative analysis should be taught to the medical students. For some years Dr. Morris had been studying diseases of the eye, ear, nose, and throat, attending summer courses in New York, and he had opened offices in Galveston for work in that specialty. He was appointed lecturer in otology at the Medical Branch for the 1908-1909 term; in addition, he continued that year as professor of chemistry because no successor was obtained. In 1909 Dr. Morris became professor of ophthalmology, the title which he retained until his death, although in recent years he was on modified service. Soon after the discovery of x-rays by Roentgen in 1895, Dr. Morris obtained a Crookes's tube and did all the radiologic work for John Sealy Hospital and Galveston for a time.

Dr. Morris was a member of the Galveston County Medical Society, Texas Medical Association, and American Medical Association throughout most of his professional career. He was elected to honorary membership in the state association in 1947. He had been a fellow of the American College of Surgeons since 1914.

On June 7, 1894, in Galveston, Dr. Morris married Miss Eulah Francis Evans, who preceded him in death in 1946.

Surviving Dr. Morris are two daughters, Mrs. Jessie Rae

Grundy, Texas City, and Mrs. Mildred Holsteyn, Houston; a brother, Dr. W. A. Morris, Graham; three nieces, Mrs. Raymond Wolf and Misses Catharine and Lucy Morris of Graham; and two grandchildren.

M. H. BENSON

Dr. Martin Henry Benson, Lubbock, Texas, died September 12, 1951, from a cerebral hemorrhage.

Dr. Benson was born July 8, 1904, in Abingdon, Ill., the son of Mr. and Mrs. R. D. Benson. He received his academic education at Texas Technological College, Lubbock, and was graduated in medicine from the University of Texas School of Medicine, Galveston, in 1931. He served an internship at the United States Navy Hospital at League Island, Pa., and a residency at St. Louis Children's Hospital. He returned to Lubbock to practice pediatrics from 1934 until 1941, when he went on active service with the Navy. He served at San Diego, Calif., and in the South Pacific before being released from duty in 1945. He then resumed his practice in Lubbock.

A member of the Texas and American Medical Associations through Lubbock-Crosby Counties Medical Society, Dr. Benson was secretary of the county organization in 1935, 1936, and 1946 and president in 1937. He was on the

DR. MARTIN H. BENSON

medical advisory board of the Lubbock Cerebral Palsy Clinic and a member of the Lubbock Crippled Children's Society. He was a member of the Episcopal Church.

Surviving Dr. Benson are his wife, the former Miss Alene Spears, whom he married October 2, 1931, in Philadelphia; a son, George Martin; his mother, Mrs. R. D. Benson, Forest Hills, N. Y.; and two brothers, Don Benson, Forest Hills, N. Y., and David Benson, Downieville, Calif.

W. H. GIRDNER

Dr. William Haywood Girdner, Abernathy, Texas, died September 7, 1951, of cerebral hemorrhage.

Born December 8, 1871, in Hunt County, Texas, Dr. Girdner was the son of Liondas and Asenatha Miriam (Lowry) Girdner. He attended Grayson College, Whitewright, Texas; Burleson College, Greenville; and was graduated from Chattanooga Medical College, Chattanooga, in 1904. After serving an internship at Erlanger Hospital, Chattanooga, he practiced in Durant, Okla. In 1929 he moved to Abernathy where he set up general practice and resided until his death.

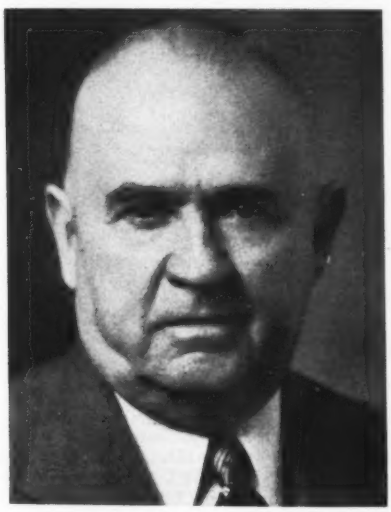
He was a member of the Texas Medical Association and American Medical Association through Lubbock-Crosby Counties Medical Society, and held membership in Sigma Chi social fraternity, the Masonic Lodge, and the Methodist Church.

In January 31, 1906, in Denison, he married Miss Carrie Dee Taylor of Durant. Surviving are his wife and a daughter, Mrs. Ralph W. Johnston of Abernathy; a brother, Charles E. Girdner, Greenville; and one sister, Mrs. Mattie Smith, Abilene.

E. H. STARK

Dr. Ernest H. Stark, Paris, Texas, died September 4, 1951, as the result of a cerebral hemorrhage suffered three years ago.

Dr. Stark was born November 16, 1873, at Liberty, Tenn., the son of Thomas H. and Nancy (Berry) Stark. He attended the Masonic Academy at Liberty and was graduated in medicine from Vanderbilt University, Nashville, in 1900. He also attended the University of Nancy in Nancy, France, in 1919. He served an internship at the Baptist Sanitarium, Dallas. Dr. Stark began practice in Direct, was located in Ladonia for ten years, and moved to Paris in 1916. During World War I, he was with the Army Medical Corps on the front lines in France, being promoted from captain through the grade of lieutenant colonel. After returning from overseas he was stationed at Fort Logan, Denver, Colo., until his discharge in 1919. In



DR. ERNEST H. STARK

1931 he was awarded a bronze medal by the city of Verdun for his gallantry in the war. Except for the period of his military service, Dr. Stark continued his practice in Paris until he became ill in 1948.

President of the Lamar County Medical Society in 1936, Dr. Stark was a member of the Texas and American Medical Associations and of the Fourteenth District Medical Society. He was a member of the Presbyterian Church.

Dr. Stark is survived by his wife, the former Miss Veta Stubblefield, whom he married August 12, 1920, in Paris; two daughters by a former marriage, Mrs. Hunter Harris, Cushing, Okla., and Mrs. J. S. Sisson, Idabel, Okla.; and one brother, T. A. Stark, Tulsa.

J. J. MULLOY

Dr. Joseph Jere Mulloy, Stephenville, Texas, died September 3, 1951, of a heart block.

Dr. Mulloy was born June 14, 1873, in Alabama, but he came to Erath County as a child with his parents, Nathan G. and Melissa D. (Garrett) Mulloy. He received his early education in the schools of the county and then attended Memphis Hospital Medical College, Memphis, Tenn., from which he received a diploma in 1893; the Chicago Eye, Ear, Nose, and Throat College, from which he received a diploma in 1898; and the old Marion Sims College of Medicine, St. Louis, from which he was graduated in 1899. After short periods in Dublin and Brady, Dr. Mulloy established his practice in Stephenville, where he was active until recent months.

Throughout most of his career, Dr. Mulloy was a member of the Erath-Hood-Somervell Counties Medical Society, Texas Medical Association, and American Medical Association. He was president of the county society in 1933. He was health officer for Stephenville and Erath County. A member of the Christian Church, Dr. Mulloy also was a Mason. He was a rancher, helped organize the old First State Bank of Stephenville, and was a pioneer in oil activities of the area in the 'twenties.

DR. JOSEPH J. MULLOY

Dr. Mulloy was preceded in death May 6, 1946, by his wife, the former Miss Onia Montana Holcomb, whom he married November 28, 1901, in Cisco. He is survived by two sons, James N. Mulloy, Texas City, and Joseph H. Mulloy, Stephenville; three daughters, Miss Elizabeth Mulloy, Texas City; Miss Jane Mulloy, Stephenville; and Dr. Mary Mulloy, Los Angeles; and one brother, Dr. Nathan T. Mulloy, Rising Star.

P. E. McCHESNEY

Dr. Paul Ely McChesney, El Paso, Texas, died August 19, 1951, of cancer of the lung.

Born April 16, 1885, in New Brunswick, N. J., to George Byron and Jane (Tobias) McChesney, Dr. McChesney attended public schools and later Rutgers Preparatory School in New Brunswick. He was graduated from Yale University, New Haven, Conn., in 1907, received his medical degree from Physicians and Surgeons College of Columbia University, New York, and interned at New York Postgraduate Hospital. He enlisted in the Army Medical Corps during World War I, served as a lieutenant, and was discharged in 1920 as a captain. Dr. McChesney also was a major in the 141st National Guard Unit. Since 1920 he had practiced in El Paso specializing in psychiatry. For twelve years Dr. McChesney served as El Paso County psychiatrist and was consulting psychiatrist for the Federal Correction Institute at La Tuna.

A member of the American Medical Association and Texas Medical Association through Dallas and later El Paso County Medical Societies, Dr. McChesney was a member of the American Board of Neurology and Psychiatry and the American Psychosomatic Society. He was a Mason and a member of the Presbyterian Church.

On June 15, 1915, in Dallas Dr. McChesney married Miss Jeanne Lee Robinson, who survives.

J. D. COVERT

Dr. John DeLamater Covert, a practitioner in Fort Worth, Texas, for fifty years, died August 3, 1951, of pulmonary embolism and lymphosarcoma.

Son of John Clark and Sarah D. Covert, Dr. Covert was born August 16, 1876, in Napoleon, Mich. He was graduated in medicine from the University of Michigan, Ann Arbor, in 1899, served an internship at the Chicago Lying-In Hospital, and began practice in Fort Worth in 1901.

Throughout his career Dr. Covert was a member of the Tarrant County Medical Society, Texas Medical Association, American Medical Association, and Thirteenth District Medical Society. He was elected an honorary member of the state

DR. JOHN D. COVERT

organization in 1951. He was chairman of the Section on Medicine and Public Hygiene for the 1915 annual session. From 1901 to 1916 Dr. Covert was professor of anatomy and pathology at the old Fort Worth Medical College. He served as senior warden and then senior warden emeritus at Trinity Episcopal Church, was a Mason and member of the Shrine, and belonged to Nu Sigma Nu medical fraternity. He was recognized officially for his work as a Selective Service examiner during World War II. Dr. Covert enjoyed the out-of-doors including plant, bird, and animal life and sports. He also was especially fond of children.

Mrs. Covert, the former Miss Virginia Scoble, whom Dr. Covert married April 29, 1902, in Fort Worth; a daughter, Mrs. John L. Anderson, Fort Worth; and a sister, Mrs. A. R. Cash, Waterloo, Iowa, survive.

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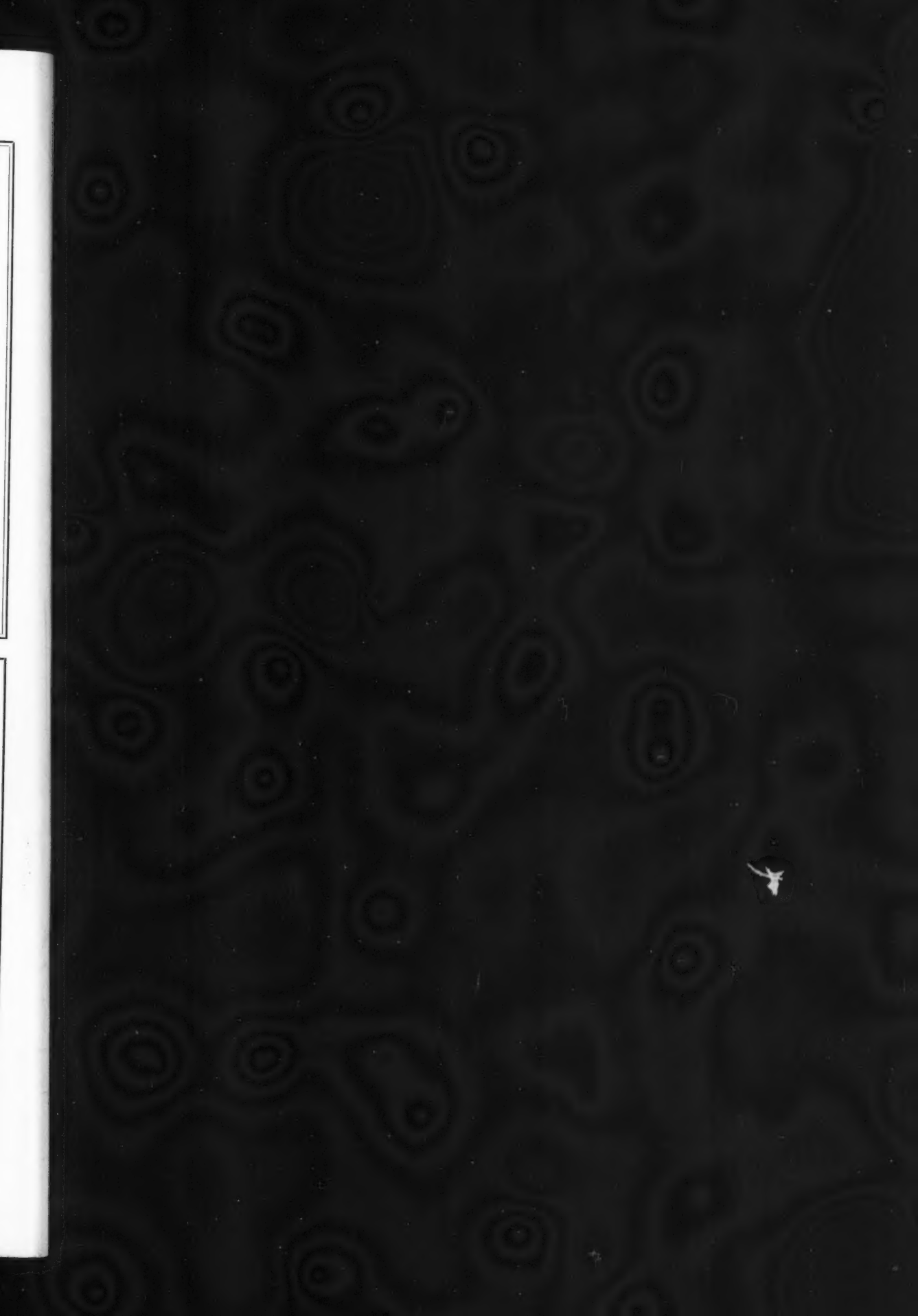
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